RAW COTTON
AND
COTTON LINTERS

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A Report by the Subcommittee for Economic Study

RAILROAD COMMITTEE FOR THE STUDY OF TRANSPORTATION

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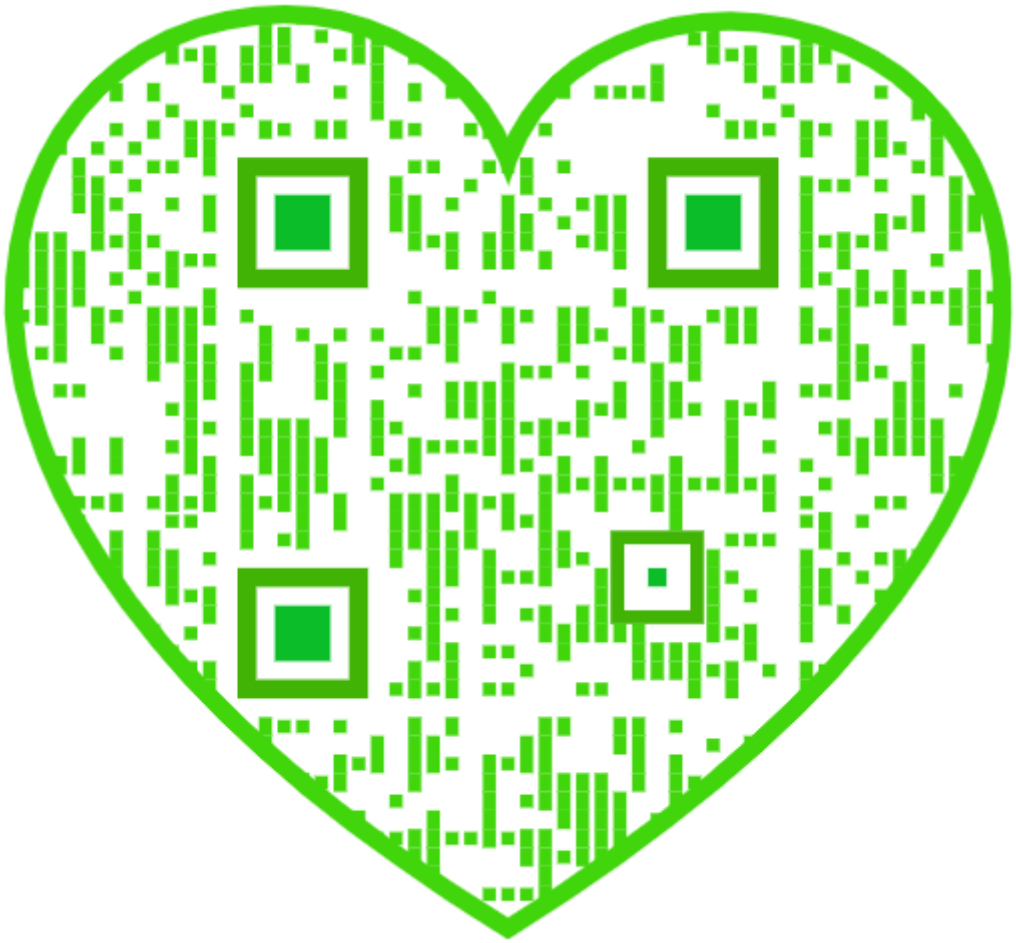

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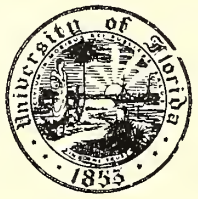

RAW COTTON
AND
COTTON LINTERS

RAILROAD COMMITTEE FOR THE STUDY OF TRANSPORTATION

Subcommittee for Economic Study

Southern Pacific Lines

Cotton Field in Bloom near Fresno, Calif.

FOREWORD

THIS report on raw cotton is the initial production of Group 8, in charge of Mr. W. L. Taylor, with headquarters at Washington. It is to be followed by similar reports on wool and mohair, raw silk, synthetic fibers, textiles of all kinds having commercial importance, and leather. When complete, the work of this group should entirely cover the field of garment and other fabrics, from raw material to consumption outlets.

The comments and conclusions of the report necessarily are somewhat preliminary. Cotton has no usefulness except as a raw material for various manufacturing processes. Therefore, its prospects after the war cannot be definitely estimated until we are able to complete our study of the textile industry. On the other hand, the amount, location and cost of supplies of raw cotton so intimately affect the economics of the textile industry that we believe cotton should precede textiles on the program for this group.

The textile study is already well under way. When completed, the comments and conclusions on raw cotton possibly may need to be revised.

The cotton-growing industry is a highly important segment of our national economy. Many railroads are intimately concerned with the welfare of this industry and its corollary business activities. To these railroads in particular—but, as well, to all railroads in some measure—certain questions raised and discussed in this report respecting the future of the cotton-growing industry will have considerable significance for their own future.

SUBCOMMITTEE FOR ECONOMIC STUDY

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CONCLUSIONS

1. Assuming that the war with Germany will end early in 1945 and the war with Japan by 1947, there probably will be a need for a 12,000,000- or 13,000,000-bale cotton crop each year through 1949. After that, this country will need an export demand larger than the 1935-39 average annual exports of 5,300,000 bales of cotton in order to market a crop of this or larger size.

2. Because the price of American cotton has been artificially supported, our cotton is gradually meeting with increasingly serious competition. After the close of the war American cotton will have much difficulty meeting competition from other cottons in world markets and from synthetic fibers in this country unless its price is quickly and substantially reduced or unless it is subsidized.

3. Subject to normal weather conditions, it is estimated that there will be available for movement by all forms of transportation in the first normal postwar year and for the succeeding two or three years approximately 12,500,000 bales, equivalent to 3,125,000 tons of cotton. The origin and termination of this traffic should be as follows:

Tons (000 omitted)

ORIGINATE

Virginia	8
North Carolina	162
South Carolina	187
Georgia	225
Alabama	233
Florida	5
Tennessee	125
Mississippi	475
Total South	1,420
Louisiana	150
Arkansas	375
Oklahoma	175
Missouri	100
Texas	700
Total Southwest	1,500
Arizona	50
California	125
New Mexico	25
Total Far West	200
All Others	5
Grand Total	3,125

TERMINATE

Virginia	60
North Carolina	710
South Carolina	550
Georgia	500
Alabama	325
Tennessee	225
Mississippi	80
Total South	2,450
Connecticut	30
Maine	40
Massachusetts	150
New Hampshire	45
New Jersey	10
New York	50
Pennsylvania	10
Rhode Island	45
Total East and New England	380
California	10
Illinos	10
Texas	200
All Others	75
Grand Total	3,125

4. It is useless at this time to try to conjecture what might be the situation as to cotton after 1949.

REASONS FOR CONCLUSIONS

1. In the 5-year period 1935-39, the United States produced an annual average of 12,800,000 bales of cotton and consumed 6,800,000 bales. Export demand was less than the remainder by about 700,000 bales annually, or by a total of 3,500,000 bales during the 5-year period. After the war this condition of excess supply will recur unless means are found to increase the foreign demand for our cotton or to expand the outlets for domestic consumption.

Since the chances of disposing of a crop of the 1935-39 average size of 12,800,000 bales after the world returns to normal conditions depend upon the uncertain prospects of increasing either domestic use or foreign takings of our cotton, there is no reason to believe that production above this level would be encouraged or can be expected. On the other hand, world need for our cotton for military and postwar-rehabilitation purposes should dispose of an annual crop of this size and thereby encourage its continued production up to about 1949.

2. After 1949 the price of American cotton must fall substantially in order for our cotton to compete in world markets and to meet domestic competition from synthetic fibers, without benefit of subsidies.

One of our principal competitors for world cotton trade in the postwar era will be Brazil. Re-

ports indicate that Brazil has increased its cotton acreage from 2,400,000 acres (average 1930-34) to 6,700,000 acres in 1940. During the 16-year period 1923-38 Middling 15/16″ cotton at New Orleans averaged 14.98 cents per pound. In the same period Brazilian Type 5 (a comparable grade) at Sao Paulo averaged 15.51 cents per pound. Since Pearl Harbor American cotton has been from 6.47 cents to 11.74 cents per pound higher than Brazilian cotton.

On August 1, 1944, the average spot price of Middling 15/16″ cotton at the 10 designated markets was 21.78 cents, compared with 25 cents per pound for rayon staple fiber. The Federal Government has guaranteed for 2 years after peace has been proclaimed a price on cotton based upon 92.5 per cent of parity. Parity on August 1, 1944, was 21.8 cents per pound. With a Government-supported price of 20 cents or higher after the war, American cotton would be unable to meet foreign competition in world markets without subsidy.

Rayon staple fiber at 25 cents per pound is almost as cheap as cotton at 21 cents per pound when the mill waste of from 10 to 20 per cent in cotton is considered. Therefore, cotton cannot fully compete with domestic rayon without a price reduction. Rayon production is man-controlled and has thus far been without Government price intervention. It is entirely probable that expanding rayon production will cause further price reductions, and 1949 may well see a 20-cent price for rayon staple fiber.

There are indications that cotton growers are learning to produce cotton more cheaply by more-effective use of their more-productive land. Average yield per acre for the crop as a whole increased from 148 pounds in 1930 to 253 pounds in 1940. A comparison of the 1940 average yield of 749 pounds per acre in California with 576 pounds in New Mexico, 375 pounds in South Carolina, 240 pounds in Mississippi, 184 pounds in Texas and 253 pounds for the Cotton States as a whole seems to indicate that the results accomplished in California could be paralleled in other states by the same methods. This should substantially decrease the cost of the cotton.

3. The conclusions as to the amount of cotton available for movement by all forms of transportation follow from the reasoning as to crop production. There seems to be no reason to look for either much more or much less cotton to be available for transportation in the immediate postwar years than was offered in 1940, 1941 and 1942. Subject to weather conditions, there is reason to believe that in the early postwar years the American cotton crop will approximate 12,500,000 bales. The estimate as to the amount of cotton to be originated in each state is based upon the cotton tonnage produced by states during the 3 years 1940-42. Similarly, the estimate as to cotton terminations in each state is based upon the consumption performance by states during 1940-42.

4. It is impossible at this time to foresee the price of American cotton in relation to foreign cotton and to the synthetic fibers after 1949. Moreover, it cannot be known now whether the Government will continue its artificial support of cotton-price levels or will initiate a cotton program of more farseeing helpfulness. The long-range future trend of cotton consumption will depend very largely upon these factors.

SUMMARY

Cotton is a basic raw material, and in world economy and international necessity it stands next to food in significance.

Importance to Railroads

Cotton is an important source of traffic and revenue to the railroads in the United States, and particularly to those in the Cotton Belt, comprising chiefly the Southern and Southwestern regions.

In 1942 there were 227,400 cars of cotton originated on Class I railroads in the United States. The total cotton revenue in that year was $42,075,000, compared with $39,204,000 in 1928. Average revenue in 1942 was $80.39 per car and $3.72 per ton, compared with $61.32 per car and $5.40 per ton in 1928.

In addition to $42,075,000 received by Class I railroads from cotton in 1942, they also received $5,900,000 from cotton linters, $1,450,000 from cottonseed, and $19,900,000 from cotton fabrics, in carloads, n.o.s. The last figure greatly understates the importance of the traffic, because most cotton fabrics move in less-than-carload lots. Still further, there are transported annually, about

54,000 tons of steel baling ties and 78,000 tons of bagging for covering the bales, plus commercial fertilizer for cotton farms to the extent of about 1,490,000 tons per year.

The Southwestern Region originated 91,000 cars and the Southern Region 89,000 cars of cotton in 1942. The two regions combined thus originated nearly 80 per cent of all the cotton traffic of Class I railroads and received about 70 per cent of the total cotton revenue in that year.

Importance in Southwestern Region

In the 15-year period 1928-42 cotton tonnage in the Southwestern Region averaged about 10 per cent and its revenue averaged 15 per cent of the totals for all agricultural products. In 1942 the tonnage was 11.5 per cent and the revenue was 16.4 per cent of the totals for all agricultural products. In the same year cotton tonnage and revenue were 1.4 per cent and 2.4 per cent, respectively, of the totals for all carload traffic of this region.

From a revenue standpoint, cotton is the most important item of all agricultural traffic to the Southwestern Region railroads. In ten of the fifteen years 1928-42 their revenue from cotton was greater than that from any other single agricultural product. The cotton revenue was $12,680,000 in 1942, compared with $20,350,000 in 1928.

In the same period, 1928-42, cotton revenue in most years closely approximated, and in several years it was greater than, the revenue from all animals and products. The average loading per car of cotton for railroads in the Southwestern Region has increased from 11.8 tons in 1928 to 19.6 tons in 1942.

Importance in Southern Region

While the Southwestern Region originates more cotton tonnage than the Southern Region, cotton revenue has been greater in the Southern than in the Southwestern Region since 1934. This is largely because considerably more cotton terminates in the Southern than in the Southwestern Region.

In the 15-year period 1928-42 cotton tonnage and its revenue averaged more than 11 per cent of the totals for all agricultural products. In 1942, cotton traffic represented 15 per cent of the revenue from all products of agriculture and 2 per cent of all carload traffic for the region.

Cotton revenue in the Southern Region has been greater than that of any other product of agriculture in 6 of the 15 years 1928-42. Since 1934 cotton revenue has been greater than that of any other agricultural product except in 1937, 1938, and 1939, when it was exceeded by revenue from oranges and grapefruit. Total cotton revenue in the Southern Region in 1942 was $16,356,000, compared with $12,770,000 in 1928.

The average loading per car of cotton originated on railroads in the Southern Region has increased from 9.6 tons in 1928 to 16.3 tons in 1942.

Rates and Loading

For many years the railroads maintained only any-quantity rates on cotton originating in the South and Southwest. On August 29, 1932, carriers in the Southwest and Mississippi Valley established carload rates on cotton to retrieve tonnage lost to water carriers and motor trucks. These rates were subject to varying minimum weights and represented material reductions under the any-quantity rates.

In the Southwestern Region cotton traffic increased 500,000 tons in 1932 over 1931 and another 165,000 tons in 1933, although the total cotton crop was 16,600,000 bales in 1931 and only 12,700,000 bales in both 1932 and 1933. The cotton crop was 5,000,000 bales smaller in 1939 than in 1931, but railroads in the Southwestern Region originated 144,000 tons more cotton in 1939 than in 1931. The increase in cotton tonnage was accomplished in 1932 and 1933 in the face of a decrease in tonnage of all agricultural products. The cotton tonnage increase can no doubt be attributed at least in part to the carload rates.

Establishment of carload rates on cotton also has tended to conserve car supply and has increased average revenue per car. Southwestern Region railroads in 1942 handled 2,910,000 tons of cotton in 143,300 cars, which was a reduction under 1928 of 7 per cent in tons and 47 per cent in cars. The 1942 average loading and revenue per car of all cotton handled in the Southwestern Region were greater than in 1928 by 9.8 tons and $13.71, respectively. Substantially similar results were accomplished in the Southern Region.

Cotton Production

Cotton is grown in 60 or more countries. Of the total, 90 per cent is grown in the United States,

India, China, Russia, Egypt, and Brazil. The United States is the largest cotton producer, with about 3 times as much as India, the next country.

Cotton is produced in sufficient quantities to be statistically recorded in 16 of the United States, extending from southeastern Virginia through North Carolina, South Carolina, Florida, Georgia, Alabama, Tennessee, Mississippi, Louisiana, Arkansas, Missouri, Oklahoma, Texas, Arizona, and New Mexico to California. This is known as the Cotton Belt. Our production is made up of 3 types, namely, American Upland, Sea Island, and American Egyptian, of which the Upland type comprises approximately 99 per cent.

About 13,500,000 people in the United States directly depend for at least a substantial part of their livelihood on the cotton crop, its distribution, and its manufacture. In addition, cotton is the most important cash crop in the United States. In the Cotton Belt it is the economic mainstay.

Of $1,763,000,000 received from farm marketings of all crops in the Cotton Belt in 1940, the cotton and cottonseed crop was valued at $742,-300,000, or 42 per cent of the total.

Cotton production in the United States reached a peak of 18,250,000 bales in 1937. It has exceeded 10,000,000 bales annually since 1909, with the exception of 1921, 1922, and 1934. Average yearly ginnings for the period 1909-41 were approximately 13,000,000 bales of cotton and 6,000,000 tons of cottonseed. The corresponding statistics for 1941 are 10,495,000 bales of cotton and 4,800,-000 tons of cottonseed. Our average annual production during the five years 1935-39 was 12,800,-000 bales.

Cotton Farms

Cotton is grown on approximately 1,600,000 farms in the United States. In 1940, the Cotton Belt contained 50 per cent of all farms in the United States and 54 per cent of the entire farm population. In some of these states a large proportion of the farm land is devoted to cotton production. This was true in 1940 of 89 per cent of all farms in Mississippi, 87 per cent in Alabama, 81 per cent in South Carolina, 77 per cent in Georgia, 76 per cent in Louisiana, 70 per cent in Arkansas, and 65 per cent in Texas.

Texas outranks all other states in cotton production. It normally produces around 25 per cent of the entire American crop. In recent years Mississippi has ranked next to Texas, with Arkansas and Alabama closely following.

The cotton year extends from August 1 to the following July 31. Cotton is planted in the late Spring and early Summer and matures from 4 to 6 months later. It is usually picked by hand. Some progress has been made in the development of mechanical cotton pickers, which have been used rather successfully in Arizona, California, and New Mexico.

The ginning process separates the seed from the lint or fiber. The ratio is usually about one pound of lint to two pounds of seed. Approximately 84 per cent of the crop is ginned between September 1 and December 1.

Inroads of the boll weavil, beginning about 1915, caused the abandonment of many Southeastern cotton farms. The preponderance of cotton production shifted from east to west of the Mississippi River. In 1910 and 1915, 57 per cent and 56 per cent, respectively, of the entire cotton crop was produced east of the Mississippi River, but this fell to 48 per cent and 43 per cent, respectively, in 1935 and 1940.

Cotton Acreage

Cotton acreage harvested in the United States reached its peak in 1926, when 47,000,000 acres were harvested. It was considerably more than 40,000,000 acres annually from 1924 through 1931. The resulting over-production caused the average farm price of cotton to drop in 1931 to less than 6 cents per pound, the lowest level in history. The Federal Government acted to restrict cotton acreage, and sought to raise cotton prices by making loans to the farmer, beginning in 1929, on varying bases. Acreage has been controlled since the 1933 season, with the exception of 1936. Cotton acreage harvested was 22,200,000 acres in 1941 and 22,-600,000 acres in 1942, which means that nearly 25,000,000 acres have been taken out of cotton since 1926.

Reduction in acreage has not proportionately reduced production, because the least-productive land was taken out of cotton and the remaining acreage was more intensively cultivated and fertilized. Hence, the yield per acre has increased materially. The average yield per acre was 148 pounds in 1930 and 253 pounds in 1940, an increase of 58 per cent.

Average yield per acre of cotton varies from state to state. California is the only state with a law whereby only one type of seed (Acala) may be planted. In 1940 the average yield per acre in California was 749 pounds, contrasted with 375 pounds in South Carolina, 240 pounds in Mississippi, 184 pounds in Texas, 190 pounds in Alabama, and 194 pounds in Louisiana.

The application of commercial fertilizer to cotton has increased per acre in recent years. Applications were 328 pounds per acre in 1944, compared with 250 pounds in 1922 and 206 pounds in 1932. More than half of all fertilizer sold is used in the Cotton States; in fact, in 1940 it amounted to two-thirds.

Cotton Grades

Cotton is the only farm crop that cannot be used until processed. It is ordinarily produced, and sold by producers, in small lots of mixed grade and staple. Before it is salable to users, it must be assembled into uniform or even lots as to grade and staple. The average contract of sale is 100 bales.

A special study in 1935 showed that 18 per cent of the cotton crop was sold by farmers in lots of 1 bale each and approximately 50 per cent in lots of 10 bales or less. Only 6 per cent was sold in lots of 100 bales or more.

Grade of cotton is determined by three factors, viz., color, foreign matter, and ginning preparation. The color classifications are extra-white, white, spotted, tinged, yellow-stained, and gray. White grades as a rule comprise about 84 per cent of the American Upland crop, Arkansas, Mississippi and California leading in their production.

Staple Length

Length of staple of the cotton fibers is an important factor in the quality of yarns and the cost of spinning. Of the entire 1928 American Upland cotton crop, 44 per cent was longer than 29/32″. Since then the staple length of Upland has steadily increased, and cotton longer than 29/32″ made up 82 per cent of the crop in 1942. In the 5-year periods 1928-32, 1933-37, and 1938-42, cotton longer than 29/32″ represented respectively, 49 per cent, 59 per cent, and 79 per cent, of the crop.

Mississippi produces most of the long-staple Upland cotton grown in the United States, having averaged 57 per cent for the 15-year period 1928-42. Arkansas and California rank next, producing 12 per cent and 11 per cent, respectively.

Compression

There are two densities of commercial compression for American bales. These are standard and high density. As a rule, bales are compressed to standard density for interior movement and to high density for export or coastwise movement via water.

During the 1937 season there were 367 cotton compresses in the United States, of which 266 had high-density facilities. Of the total, Texas had 39 per cent, of which four-fifths had high-density facilties. Mississippi ranked next with 14 per cent, half of them with high-density facilities.

Marketing

The marketing of cotton from grower to spinner or exporter is handled all the way on a cash basis. Middling grade 15/16″ staple is the basis for cotton prices. The value of other grades is expressed as so many points "on" or "off" Middling 15/16″. Prices of cotton in central markets generally are used in price analyses.

Consumption

Of all cottons consumed in world mills from 1914 to 1928, American cotton averaged 60 per cent. From 1929 to 1939 American cotton averaged 47 per cent, a reduction of 13 percentage points. Consumption of foreign cotton in foreign mills has steadily increased, while consumption of American cotton has steadily decreased, since 1928.

American cotton averaged 98 per cent of the total consumed in the United States during the 30 years 1914 to 1943. Our average annual domestic consumption of American cotton in the 5-year period 1935-39 was 6,800,000 bales. In 1941 and 1942 it was nearly 11,000,000 bales.

Mills in the cotton-growing states in 1940 consumed 85 per cent of our total consumption, compared with 48 per cent in 1909. Mills in North Carolina, Georgia, South Carolina, and Alabama consumed 76 per cent of our total 1940 consumption.

Per-capita consumption of cotton in the United States was 26 pounds in 1911 and 36 pounds in 1940. The corresponding figures are, for wool, 2.6 pounds in 1911 and 3.1 pounds in 1940, and for

rayon, .02 pound in 1911 and 3.7 pounds in 1940. Silk consumption per capita has not reached 1 pound in any year since 1911.

Production Compared With Consumption

In 1941, the United States consumed 11,170,000 bales of domestic and foreign cotton, but produced only 10,495,000 bales. However, we normally consume only about 45 per cent of our cotton crop. In recent years there has been a production deficiency in southern states that consume as well as produce cotton, notably in Alabama, Georgia, North Carolina, and South Carolina. These states have had to draw cotton from Mississippi and west to supply their needs.

Exports

The United States, India, Egypt, Turkey, Belgian Congo, Iran, Kenya, Uganda, Anglo-Egyptian Sudan, Russia, China, Argentina, Brazil, Peru, and Mexico normally export 95 per cent or more of all world exports of cotton.

The United States is the world's leading cotton exporter. India and Egypt rank next. Based on the 1934-37 average, the United States exported twice as much cotton as India.

For the 5-year period 1910-14 our cotton exports annually averaged 8,944,000 bales, or about 65 per cent of production. A peak record of 10,927,000 bales was exported in 1926. Since 1934 our exports have been below 6,000,000 bales, except in 1939 when they were 6,192,000 bales. They fell to 3,327,000 bales in 1938 and 1,112,000 bales in 1940. Average annual exports during the 5 years 1935-39 were 5,300,000 bales.

For many years cotton exported from the United States has gone principally to the United Kingdom, Germany, Japan, France, and Italy.

Value of Cotton Exported

Since 1913 the value of raw cotton exports has on several occasions exceeded 20 per cent of the value of all merchandise exports. At times their value amounted to 30 per cent of the value of our total merchandise imports for consumption.

Imports

The United States imports a relatively small quantity of cotton from other countries, for special uses. For the period 1930-40 our annual imports of foreign-grown cotton averaged only 151,000 bales. Most of it comes from India and Egypt.

World Carry-Over

World production and consumption were closely in balance in 1928, the year preceding the onset of the depression. Carry-over at the end of that year totaled 10,541,000 bales or approximately four months' world consumption. It increased to 18,336,000 bales on July 31, 1932; to 22,702,000 bales on July 31, 1938; and to an all-time record of almost 24,000,000 bales on July 31, 1943. The world carry-over at the end of the 1943 season was almost a year's supply.

Domestic Carry-Over

Until 1928 the carry-over of cotton in the United States usually did not exceed the approximate equivalent of 6 months' consumption. At the end of that year our carry-over was 2,312,000 bales. Since then it has been much greater, and on several occasions it was greater than consumption during the following year. We had a record carry-over of 13,033,000 bales on Aug. 1, 1939.

Although our 1941 consumption of 11,170,000 bales was greater than production, our supply was more than ample, as we began that year with a carry-over of more than 12,000,000 bales. Carry-over on August 1, 1942, was 10,640,000 bales.

Cotton Linters

Linters are the short fibers not removed from the seed at the gin but which must be removed before it is pressed for oil. The oil mills run the seed through a delinting machine, either once or twice. The yield is from 20 to 250 pounds of linters from each ton of cottonseed, varying according to the staple length of the cotton and the delinting method used. Linters are classified according to color and length into seven grades. The staple length ranges from 5/32″ to ⅝″. High-grade linters are used for spinning low-grade yarns, making matresses, pads, upholstery, and surgical dressings. The lower grades are converted by the chemical industry into guncotton, varnishes, lacquers, and rayon, etc. War always greatly stimulates the demand for linters, for the manufacture of explosives.

Production of Linters

Our production of linters has steadily increased from 1909, when it was 310,000 bales[1]. During the

[1] All statistical bales of linters are equivalent bales of 500 lbs. gross weight.

first World War it exceeded 1,000,000 bales per year, and for the most part it has consistently risen since then. During the 17 years 1925-41 it has been below 1,000,000 bales in only 3 years. The largest crop was 1,819,000 bales in 1937. Production in 1940 was 1,507,000 bales. Among factors which may account for the increased production of linters despite lower levels of cotton production are the increased demand for linters for manufacturing rayon, the discovery of new uses for cellulose by the chemical industry, and the increased staple length of cotton.

Texas has been for many years the largest producer of linters, with Mississippi and Georgia usually ranking next. In recent years Arkansas has moved forward in this respect, and it ranked next to Texas in 1940. In that year Texas produced 335,000 bales, Arkansas 203,000 bales, Mississippi 196,000, Tennessee 144,000 and Georgia 127,000 bales. No other state produced as much as 100,000 bales.

Consumption of Linters

There is wide variation in the price of linters, according to their grade. With but few exceptions the annual average price during the period 1911-41 has been below 5 cents per pound. The 1942 average was 4.5 cents per pound.

While we normally consume in this country about 45 per cent of our cotton crop, our consumption of linters during the 33-year period 1909-41 averaged 81 per cent of production. In 1938 it was 104 per cent, and in 1941 it was 126 per cent. To preserve trade and military secrets, the Bureau of the Census aggregates some of the states with the largest consumption into a single figure for "all other states". Of the states for which individual statistics are available for 1941, Texas was the largest consumer, with 58,400 bales, or 3.9 per cent of total. Illinois and California were next, with 54,300 bales and 50,000 bales, or 3.7 and 3.4 per cent of the total, respectively.

Exports and Imports of Linters

In 1914 we exported 226,000 bales of linters, or 26 per cent of our total production. For the 15 years 1924-38 we exported 20 per cent of our total production. The outbreak of war abroad in 1939 raised linters exports to 432,000 bales, or 33 per cent of the total production. Shipping restrictions and national defense requirements caused our exports in 1940 to fall to their lowest level—30,000 bales, or 2 per cent of the total production.

In the 15 years 1924-38 Germany imported more of our linters than any other country, taking from 50,000 to 150,000 bales per year. France and the United Kingdom were next in rank, with France leading slightly. France's maximum taking was 64,000 bales, in 1936, and Great Britain's was 80,000 bales, in 1938. The Netherlands, Italy, Japan and Belgium, in that order, also have used substantial quantities of American linters. Their combined takings usually were about half those of Germany.

In peacetime years our imports of linters are insignificant. In 1936, the first year in which linters were reported separately, we imported 53,000 bales. In 1940, reflecting the war demand, we imported 247,000 bales, of which 199,000 bales came from Brazil, 18,000 from Mexico, and 21,000 bales from the Argentine.

Transportation of Linters

Cotton linters originated by Class I railroads in 1942 totaled 37,000 carloads, of which 23,000 carloads originated in the Southern Region and 6,300 carloads in the Southwestern Region. Revenue from cotton linters in the Southern Region in 1942 was $2,737,000, an increase of $1,500,000 over 1928. In the Southwestern Region it was $1,010,000, an increase of $323,000 over 1928.

Linters generally move in carload lots in boxcars, with an average load per car of 39,000 pounds. During the period 1933-42, rates in the South have been on the basis of 22.5 per cent to 40 per cent and in the Southwest from 21 per cent to 37 per cent, of first-class, according to the carload minimum weight, plus the general increases authorized under Ex Parte 115 and 123.

Southern Railway System

Cotton crop well formed. Bottom crop beginning to open.

Illinois Central System

Portion of cotton plant, showing blossom, ripe (opened) boll, and green (unopened) boll

Chapter I
Introduction and History

Historical Summary

Cotton[1] is a basic raw material. In world economy and international necessity it stands next to food in significance.

The story of cotton dates back to an authentic 800 B. C., in India. The Spanish conquerors of Mexico and Peru found both cotton and cotton cloth in those countries.

The beginnings of the industrial utilization of cotton in Europe coincided with the invention in 1760 of modern principles of spinning and weaving. This placed a heavy demand on the fields of the Orient and the Americas, a production which those regions and the Sea Islands off the Carolina coast then were unable to supply.

It was natural that the planters of the South should at least attempt the cultivation of cotton, as their soil and climate were adapted to its growth. However, the variety best suited to their fields had a staple which clung so tenaciously to the seed that it was practically impossible to separate it by hand on a commercialy profitable basis. Nevertheless, the colonists were encouraged to plant it, and nearly every settler in the Southern colonies had a small patch in his garden for home use. When cotton was picked in the fall, it was stored away and hand "ginned" during the winter, when labor was otherwise idle.

But the demand for cotton grew, and finally the planters' problem of separating the lint from the seed was solved by Eli Whitney. He produced in 1794 the first cotton gin, the principles of which are still used. Spikes (or saws) operating through slotted apertures pull the fibers from the seeds, and brushes remove the fibers from the spikes or saws. Holmes improved Whitney's gin by the invention of the well-known gin saws. In recent years a roller-type gin has been used to gin long-staple cotton grown in the irrigated Southwest.

Whitney's gin revolutionized Southern farming methods and resulted in establishing the one-crop plantation as the basis of Southern economics. New lands were sought for cotton raising. The Carolinas switched from rice to cotton; pioneers in Tennessee began to plant cotton on their farms; all the new states down the Mississippi River were settled by cotton planters. New Orleans, Savannah, Charleston and Mobile grew rich in the service of the cotton planters.

In a few decades the Southern states had firmly established themselves as the world's greatest cotton-producing area. Cotton raising spread westward to Texas, Oklahoma, New Mexico, Arizona, and California. Throughout much of this region, particularly in the deep South, development of other natural resources was secondary to the effort to supply the world's mills with cotton.

Cotton and its products find their way into almost every industry known to mankind and are used in one form or another in practically every household. Thread spun from raw cotton has furnished three-quarters of the garmentry of man for generations.

Importance Of Cotton

Cotton is the most important cash crop in the United States. For many years cash income from cotton lint has been greater than the cash income from any other of our farm crops. Upon no other single agricultural commodity do so many American citizens depend for a living. Corn, wheat and hay occupy a larger acreage, but corn and hay are feed crops consumed largely on the farms where produced, and wheat provides employment for fewer people.

From 3,000 bales grown in 1790, the cotton production of the United States grew to the record crop of 18,250,000 running bales in 1937.[1] Average yearly ginnings for the 34 years 1909-1942 were nearly 13,000,000 bales of lint and about 6,000,000 tons of cottonseed. During this time the land devoted to the growth of cotton in this country ranged from 27,000,000 to 47,000,000 acres. The farm value of the cotton crop has been as high as two billion dollars in one year, 1919.

Approximately 13,500,000 people in the United States are directly dependent on the cotton crop for at least a substantial part of their livelihood. On 1,600,000 cotton farms of the South and the Southwest more than 10,000,000 persons, or 2,500,000 families, are dependent on cotton for

[1] Cotton actually comprises two crops, fiber and seed. Wherever the word "cotton" appears in this report without specific qualification it refers to cotton fiber.

[1] Whenever a crop-year is referred to in this study, it means the twelve months beginning with August 1 of that year. The crop-year 1937, for example, refers to the period from August 1, 1937, to July 31, 1938. See Glossary.

the greater part of their income. Cotton textile manufacturing in all its branches provides the support of approximately 3,000,000 persons. In other work based upon cotton marketing and processing there are about 500,000, making a total of at least 13,500,000 persons directly dependent upon cotton for the necessities and comforts of life. This is about 10 per cent of the population of the continental United States.

Large as they are, these figures do not include the many owners of stocks and bonds of cotton mills and other companies whose business is based on cotton, nor bankers who finance the growing, handling, and manufacturing of cotton and the merchandising of cotton products. Nor do they include the millions engaged in retail merchandising in establishments ranging from the crossroads trading center to the great city department store, each of which has a large variety of cotton products on its shelves.

Description of Cotton

The cotton plant is of tropical origin and may vary from 2 to 6 feet in height, according to soil and climate. It bears cream-colored blossoms, from the base of which bolls or pods are developed. In the interior of these the cotton seeds, enwrapped in the fiber, are produced. When ripe the bolls open, revealing the seed cotton in from two to five or six locks, which may easily be picked out. Under favorable conditions the plant continues growing, bearing flowers and then bolls until killed by frost. The fields are usually picked two or three times, the last picking, or "scrapping", getting the "top crop" from the top of the plants.

Cotton is planted in the late spring and early summer, and the bolls mature at successive intervals, as above described, from four to six months later. The crop-year extends from August 1 to the following July 31. The harvesting season begins in the Rio Grande Valley in Texas in July and progresses northward into the producing states until as late as November or December in some sections.

Cotton as a rule is picked by hand. Some progress has been made in the development of mechanical cotton pickers and in Arizona, California, and New Mexico they have been used rather successfully. After being picked, the cotton is then transported in wagons or trucks to a gin on the farm or to a custom gin nearby. The ginning separates the seed from the lint. The ratio is usually about one pound of lint to each two pounds of seed.

Compression of Bales

Cotton lint is baled at the gin in what is termed a flat or uncompressed bale or in what is termed a round bale. Unless it goes direct to a mill, the cotton later on is further compressed, as a rule. There are two types or degrees of further compression for American bales—so-called standard-density compression and high-density compression. In general, bales are compressed to standard density for interior shipment and to high density for ocean shipment. Normally, nearly all cotton for export and a large part of that shipped to New England is compressed to high density for the sake of lower water transportation rates, which usually are based upon cubic displacement.

The dimensions and weight of various types of bales are shown in Table I.

From 1909 through 1942 round bales have never exceeded 5.6 per cent of the total, and in several years they were less than 1 per cent. In fact, since the 1932 season, which was the peak in this respect, the round bale has gradually declined until only 1/10 of 1 per cent was so baled during the 1941 season.

TABLE I

Description of American Cotton Bales

Kind of Bale	Dimensions (approximate) Inches	Weight (approximate) Per Bale Pounds	Weight (approximate) Per Cu. Ft. Pounds	Ties per Bale Usual Number	Ties per Bale Weight Pounds
Flat, or gin (uncompressed)	54 x 27 x 45–48	500	12–15	6	9
Standard density	56 x 28 x 18–22	500	22–28	8	9
High density	59 x 24 x 19	500	28–40	9	9
Round bale	35 length, 22 diameter	250	33	0	0
Ginner's compress bale	52 x 25 x 20	500	25–35	6	9

Source: U. S. Dept. of Agriculture, Miscellaneous Publication No. 310, "The Classification of Cotton," May 1938, Table 1, p. 5.

Most government and other published statistics on cotton are expressed in running bales (see Glossary). Some cotton statistics, however, are expressed in terms of bales equated to a gross weight of 500 pounds and net weight of 478 pounds. Whenever used herein, bales mean running bales, counting round bales as half bales, unless otherwise specified.

Major Types of Cotton

The length, character, and color of the cotton fiber vary according to the type and variety of the plant. Though there are hundreds of different varieties, four major types of cotton are produced commercially, as follows [1]:

1. *Sea-island cotton*, native to tropical America, has bolls usually of three locks with very long, silky fiber. "Fancy sea island", produced along the South Carolina coast and on offshore islands, has a fiber 2 inches or more long, and is the most valuable of the world's cottons, surpassing all other types in length, strength, and fineness. The production of this cotton in the United States was ruined by boll-weevil infestation, so that at present it is a negligible factor in the world crop.

2. *Egyptian cotton* also has a fine, silky, strong fiber, 1-3/16 to 1¾ inches in length. It is second in value only to the Sea-island. The great bulk of the crop is grown in Egypt, but some of this type is produced in the irrigated valleys of Arizona.

3-a. *Upland long-staple cotton*, grown chiefly in the United States, has bolls with four or five locks, with fibers from 1⅛ to 1¾ inches long. For some uses it competes with Egyptian cotton. Most of the United States production of this type of cotton is in the Delta lands of Mississippi[2], in the Pecos and Red River Valleys of Texas, and in Arkansas, California, Oklahoma, and South Carolina.

3-b *Upland short-staple cotton* constitutes more than 90 per cent of the United States crop. Its fibers range in length from ⅝ to 1⅛ inches. In the Cotton Belt hundreds of varieties are cultivated, differing in habit of growth, size of bolls, earliness of opening, and abundance, length, and uniformity of staple.

4. *Asiatic cotton* is short, often only ⅜ to ¾ or 1 inch, but is strong and rather rough. It is produced in India, China, Asia Minor, Persia, Indo-China, and Japan, but in several districts is giving way to the American upland type. Most of this type of cotton is applied to native or local uses.

Of these four major types of cotton, three are grown in the United States, namely, Upland, American Egyptian, viz., Pima and SXP (Sakellaridis crossed with Pima); and Sea-island. The Upland type, short and long staple, constitutes almost all the cotton grown in this country.

The American Egyptian cotton was first grown commercially in this country in 1918, when 36,000 bales were produced. This was but 0.3 per cent of the total cotton crop. The production of this type of cotton has never exceeded 0.7 per cent of the total crop, and that amount was reached only in 1920, when 93,000 bales were produced. It is grown in irrigated districts of Arizona, New Mexico, and Texas.

Sea-island cotton was grown rather extensively at one time in the Southeastern coastal areas. It amounted to 1 per cent of the total cotton crop in 1916, when 118,000 bales were produced. However, the boll weevil took such toll of this cotton that its production has almost vanished. During the last nineteen years the Sea-island cotton crop has amounted to less than 1/10 of 1 per cent of our annual cotton crop.

World Cotton Production

Production of United States and foreign cotton, by years, from 1909 to 1942, is shown in Table II. The United States for many years produced more than half of the world's commercial cotton, ranging up to 72 per cent in 1911. Except for our 1921 crop, which was severely damaged by the boll weevil, we did not fall below 50 per cent of the total world's production until the 1933 season, when we produced but 49 per cent. Subsequent to that season the trend in the United States has been generally downward, with the exception of the record-breaking crop of 1937. Meanwhile, the trend in foreign and world production has been generally upward.

Although American cotton no longer dominates the world's markets, we are still the leading cotton-producing country. The present war years excepted, there is grown in this country each year nearly three times as much as in India, the country next in cotton production. Chart A affords a

[1] The Cotton Situation, Yearbook of The Department of Agriculture, 1921, pp. 327-330.

[2] Roughly, the area between the Yazoo and Mississippi rivers. The term refers to the Delta of the State of Mississippi and not the delta of the Mississippi River—see page 35.

TABLE II

World Cotton Production, United States and Foreign Bales, 478 Pounds Net
(000 Omitted)

Year	United States	Foreign	Total World	U. S. Percentage of Total
1909	10,005	6,895	16,900	59
1910	11,609	6,791	18,400	63
1911	15,694	6,206	21,900	72
1912	13,703	7,397	21,100	65
1913	14,153	8,047	22,200	64
1914	16,112	8,088	24,200	67
1915	11,172	6,628	17,800	63
1916	11,448	8,452	19,900	58
1917	11,284	8,416	19,700	57
1918	12,018	8,672	20,690	58
1919	11,411	9,889	21,300	54
1920	13,429	7,921	21,350	63
1921	7,945	8,025	15,970	50
1922	9,755	9,545	19,300	51
1923	10,140	9,880	20,020	51
1924	13,630	11,530	25,160	54
1925	16,105	12,135	28,240	57
1926	17,978	10,942	28,920	62
1927	12,956	11,934	24,890	52
1928	14,477	12,403	26,880	54
1929	14,825	12,035	26,860	55
1930	13,932	12,298	26,230	53
1931	17,097	10,723	27,820	62
1932	13,003	11,357	24,360	53
1933	13,047	13,843	26,890	49
1934	9,636	14,204	23,840	40
1935	10,638	16,112	26,750	40
1936	12,399	19,071	31,470	39
1937	18,946	19,679	38,625	49
1938	11,943	17,157	29,100	41
1939	11,817	17,183	29,000	41
1940	12,566	17,874	30,440	41
1941	10,744	17,486	28,230	38
1942([1])	12,817	14,430	27,250	47

([1]) Preliminary.

Source: U. S. Department of Agriculture, Agricultural Statistics, 1942, Table 137; Cotton Situation, January 1944, Page 8.

graphic presentation of this and other comparisons of world cotton production.

Cotton is grown in 60 or more countries. However, only six are of great individual importance. These are the United States, India, China, Russia, Egypt, and Brazil. These countries averaged more than 90 per cent of the total world's cotton production for the 33 years 1909-41. Next in importance are Peru, Mexico, Argentina, Uganda (British Africa), Anglo-Egyptian Sudan, Turkey, Belgian Congo, Chosen (Korea), and Iran. None of these ten has ever grown more than 1.5 per cent of the world's total cotton crop. Of the remaining forty-four countries, none has ever produced as much as 1.5 per cent of the world's total. In most instances the individual production has been much less than 1 per cent of the total.

Egypt raises two distinct types of cotton. The more important is grown almost entirely in upper Egypt[1] and has become known throughout the cotton trade as Uppers. Most of this cotton is ordinarily long staple, of 1⅛ to 1-11/32 inches in length. The cotton grown in lower Egypt has for the most part been of longer staple (extra-long staple, 1⅜ inches and longer) than that grown in upper Egypt. This variety is known as Sakellaridis.

Egyptian Uppers is in many respects similar in quality to our domestic long-staple Upland, and the two are directly competitive for certain uses. Egyptian Sakellaridis is similar to American-Egyptian or Pima cotton and is generally considered as directly competitive.

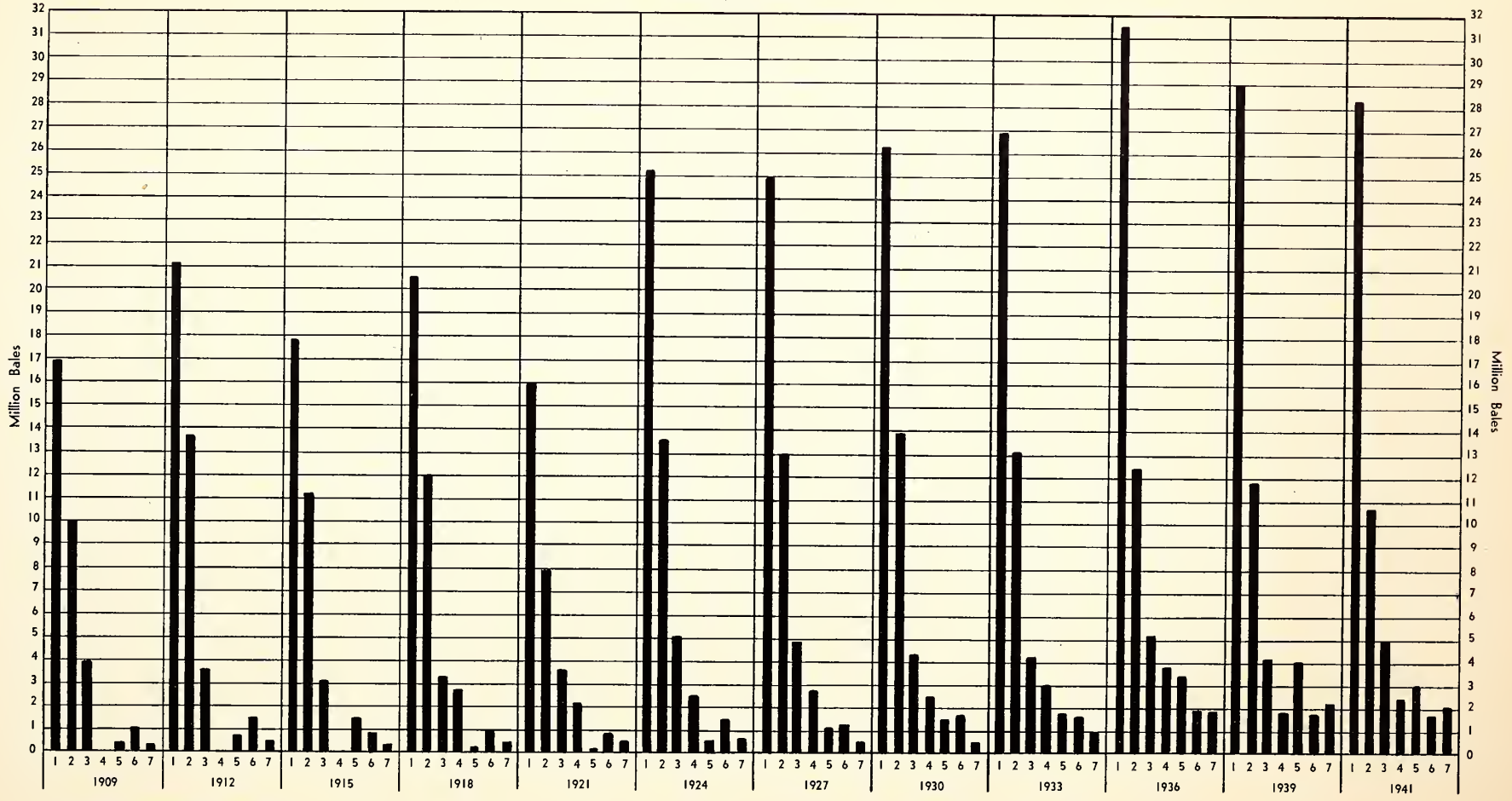
American Upland-type cotton is the principal variety produced in Mexico, Uganda, Belgian

[1] See Glossary.

Chart A

COTTON PRODUCTION BY PRINCIPAL COUNTRIES

(Millions of Bales, 478 lbs. net)
Selected years 1909 to 1941



Source: U. S. Department of Agriculture.

Legend: 1 World 2 United States 3 India 4 China 5 Russia 6 Egypt 7 Brazil

Congo, Argentina, Russia, Turkey, and Chosen (Korea). In Brazil production of cotton is equally divided between American Upland variety and so-called "tree" cotton, probably derived from Peruvian "tree" cotton. In Anglo-Egyptian Sudan the cotton crop consists of both the American Upland and Egyptian Sakellaridis varieties. The principal type of cotton grown today in Peru is a native variety known as Tanguis, which doubtless is the result of crossing American Upland with Egyptian Sakellaridis. China and India produce Asiatic-type cotton almost exclusively.

Table III shows, by decades from 1910, the production of cotton in the principal producing countries of the world.

Statistics on cotton grown in the countries shown below also are published. However, in no year from 1909 to 1937 has any of these countries produced as much as 30,000 bales.

Algeria	French Indo-China	Japan	Rumania
Angola	French Sudan	Kenya	Senegal
Australia	French Togo	Malta	Siam
British West Indies	Gold Coast	Netherlands Indies	Spain
Cyprus	Haiti	New Hebrides	Union of South Africa
Dahomey	Iraq	Niger Territory	Upper Volta (Fr. W. Africa)
Ecuador	Italian Somaliland	Nyasaland	Venezuela
Eritrea	Italy	Puerto Rico	Yugoslavia
French Guinea	Ivory Coast	Rhodesia	

TABLE III

Cotton Production—World, and in Leading Countries [1]
Bales (000 Omitted) [2]

	1910	1920	1930	1937
World, Estimated	18,400	21,350	26,230	38,625
United States	11,609	13,429	13,932	18,946
India	3,254	3,013	4,373	4,867
China	[3]	2,406	2,615	3,600
Russia	592	58	1,587	3,700
Egypt	1,555	1,251	1,715	2,281
Brazil	357	476	483	2,075
Peru	88	177	271	376
Mexico	200	[3]	178	340
Argentina	2	26	139	237
Uganda	17	68	158	349
Anglo-Egyptian Sudan	18	26	106	264
Chosen (Korea)	14	101	149	214
Iran	[3]	5	47	271
Turkey	102	[3]	74	299
Belgian Congo	[3]	3	67	175
Bulgaria	1	1	4	47
Colombia	[3]	[3]	10	27
French Equatorial Africa	[3]	[3]	6	39
Greece	[3]	7	17	75
Mozambique	[4]	1	10	46
Nigeria	5	26	16	27
Paraguay	[3]	1	18	42
Syria and Lebanon	[3]	[3]	12	26
Tanganyika	10	2	19	51

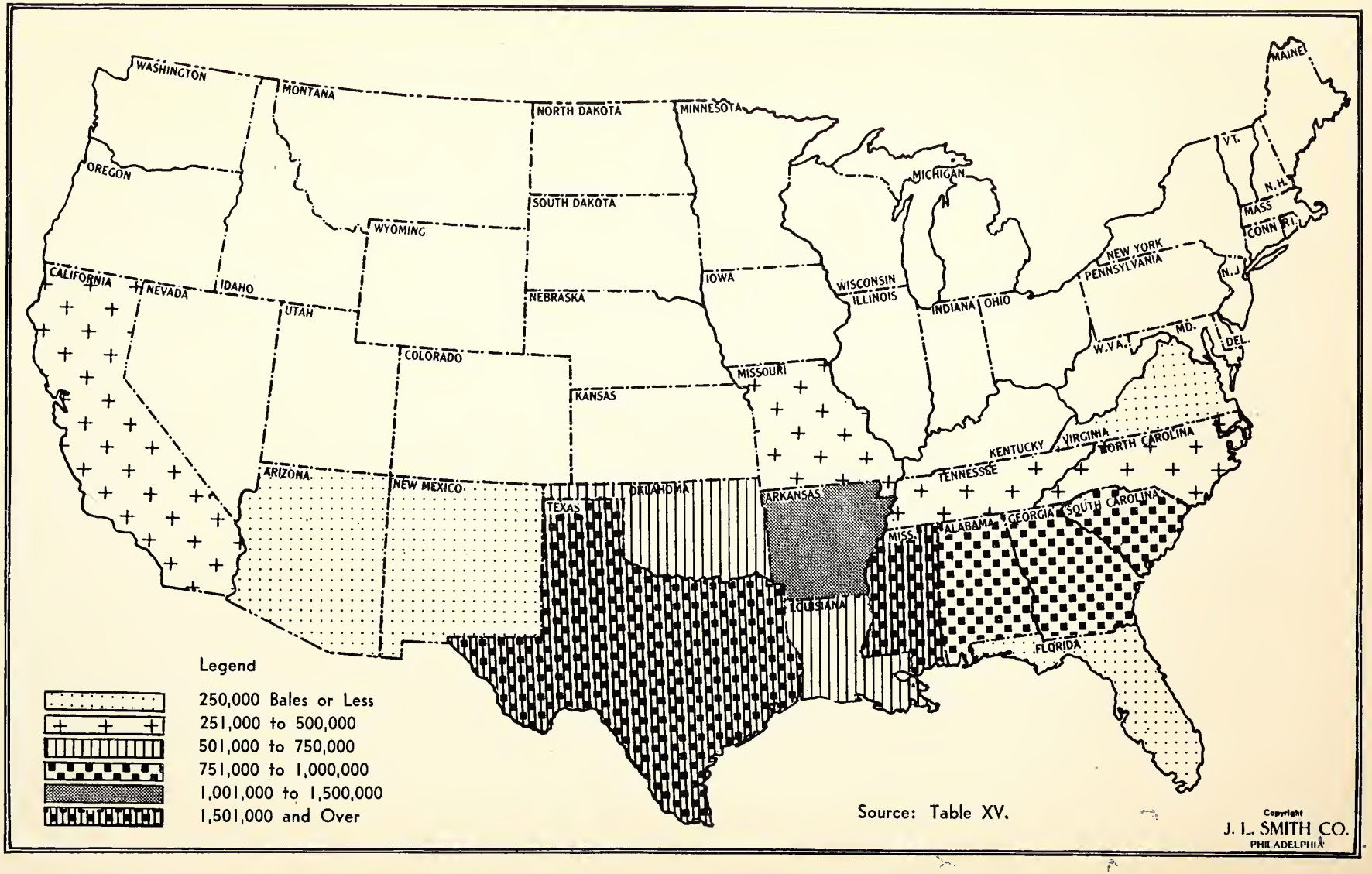
[1] Those producing 30,000 or more bales in any year, 1930 to 1937.
[2] Of 478 pounds, net weight.
[3] Statistics not reported.
[4] Less than 100 bales.

Source: U. S. Department of Agriculture, Agricultural Statistics, 1939, Table 140, pages 106–7; World Cotton Situation, September 5, 1939.

Maps for American Cotton

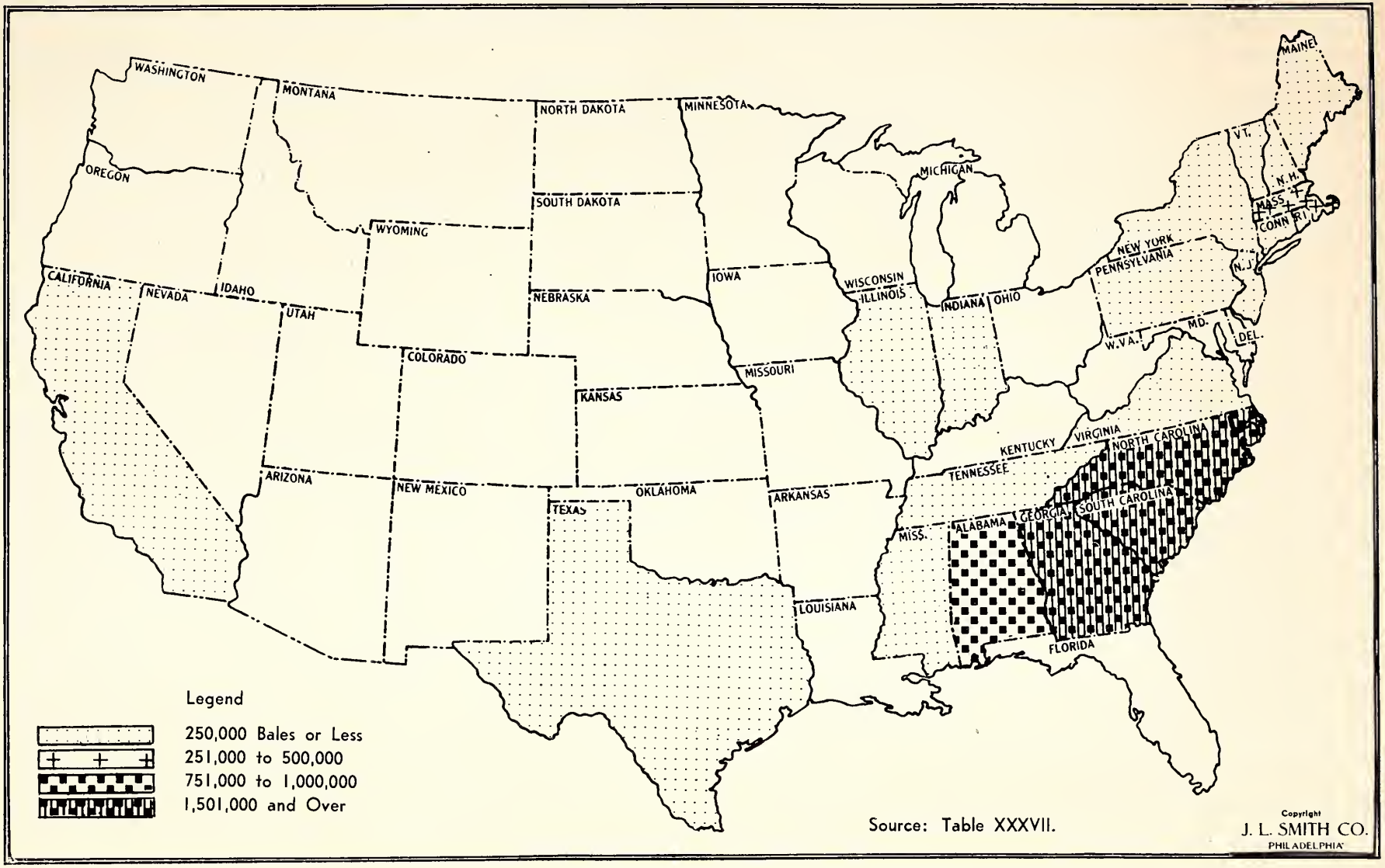
To facilitate understanding of the principal geographical facts in regard to American cotton, there are now introduced four outline maps, by states, marked A, B, C and D. These indicate for the various states having to do with cotton the relative volumes of, respectively, production, consumption, combined exports and coastwise shipments, and coastwise receipts. Imports are too small to be significant.

Map A
COTTON PRODUCTION, BY STATES, 1939



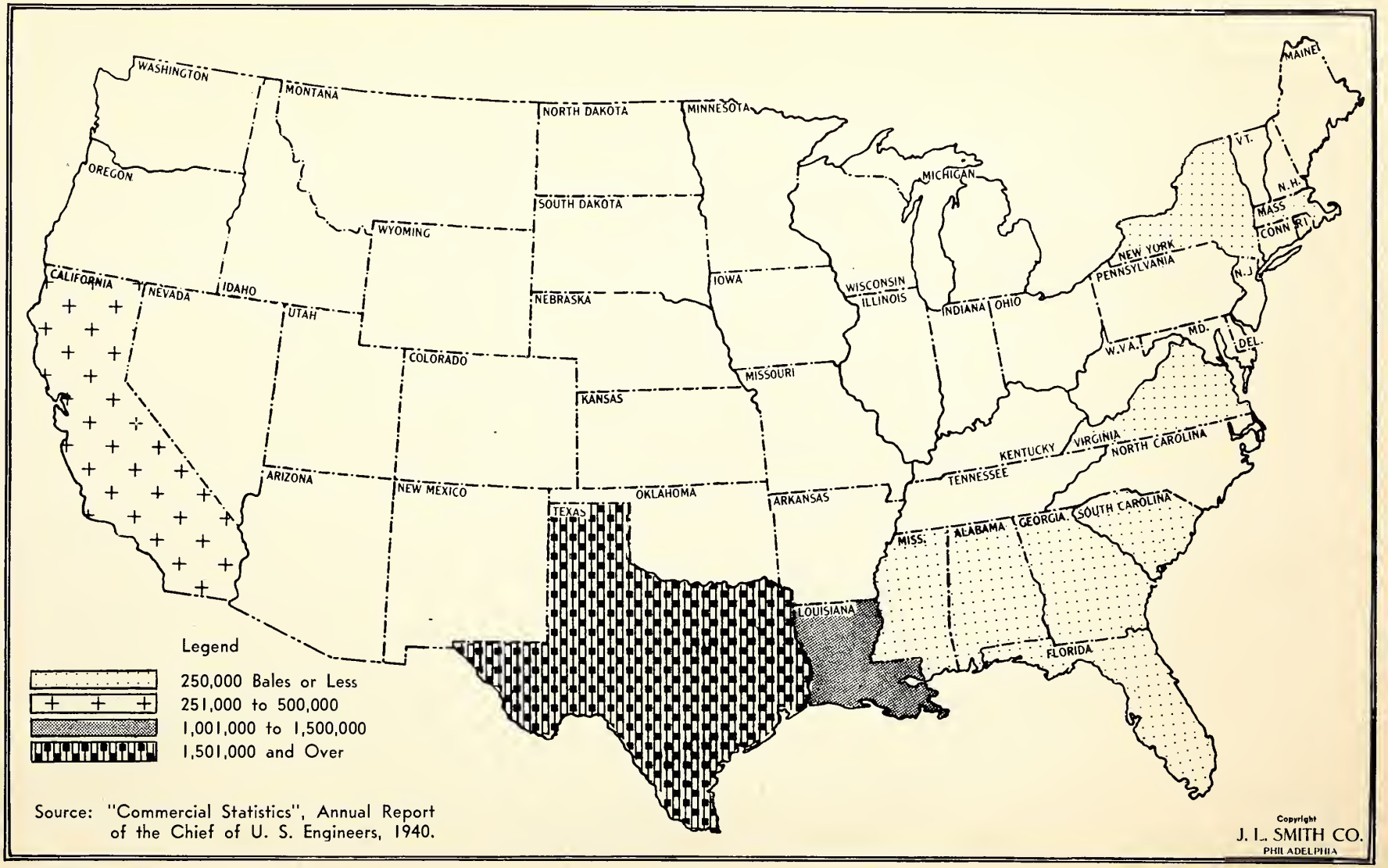
Map B

COTTON MILL CONSUMPTION, BY STATES, 1939



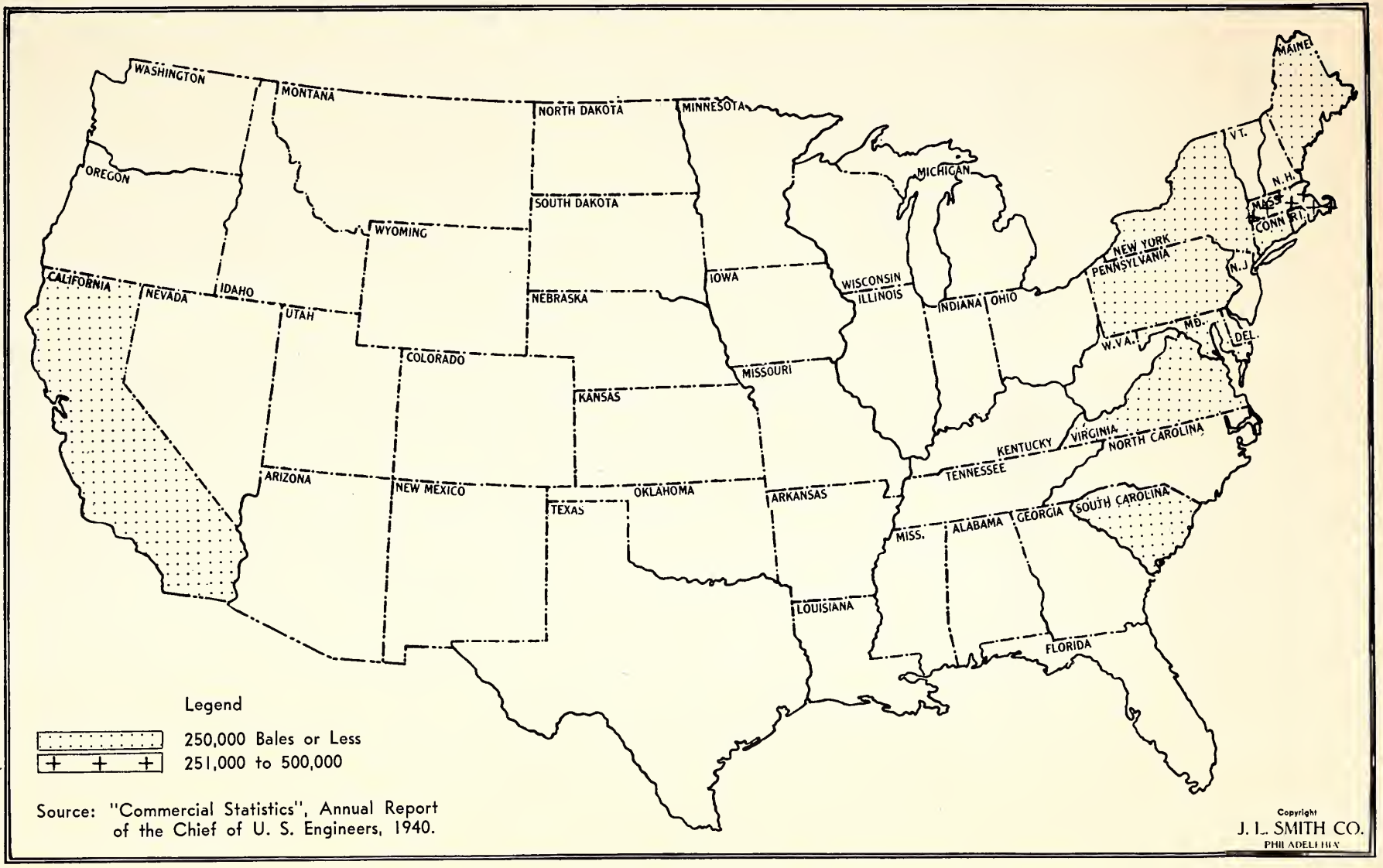
Map C

COTTON EXPORTS AND COASTWISE SHIPMENTS, BY STATES, 1939



Map D

COASTWISE RECEIPTS OF COTTON, BY STATES, 1939



Southern Railway System

Wagons Delivering Cotton at a Gin

Chapter II
Cotton Production In The United States

Producing Area

Cotton is produced, in sufficient quantities to be statistically recorded, in sixteen states, extending from southeastern Virginia through North Carolina, South Carolina, Florida, Georgia, Alabama, Tennessee, Mississippi, Louisiana, Arkansas, Missouri, Oklahoma, Texas, Arizona, and New Mexico to California. This is known as the Cotton Belt of the United States. It is a region of hot summers and mild winters. The average summer temperature of the Cotton Belt ranges from 77 degrees in the north to 85 degrees in the south. A frost-free growing season of at least 180 days is usually necessary for the full growth and ripening of all the bolls.

Cotton is also produced in small quantities in a few other states, but of insufficient amount to be recorded in crop statistics. The relative importance of the various states from the standpoint of production will be discussed later.

Table IV shows the total Upland, American-Egyptian and Sea-Island produced in the United States, by years, from 1909 to 1942. Also shown is the total crop in physical bales, in equivalent 500-pound bales and in running bales, counting round as half bales.

Farms, Farmland and Cottonland

Table V shows the number of farms and the farm population in the United States and in the

TABLE IV

Cotton Production in the United States

Running Bales (Except as Indicated)

(000 Omitted)

Year	Total Counting Round as Half Bales	Total Equivalent 500-Pound Bales	Total Actual Bales	Upland		American Egyptian	Sea-Island
				Square	Round		
1909	10,073	10,005	10,148	9,903	151	..	95
1910	11,568	11,609	11,625	11,422	113	..	90
1911	15,553	15,693	15,604	15,383	102	..	119
1912	13,489	13,703	13,529	13,374	82	..	74
1913	13,983	14,156	14,033	13,855	100	..	78
1914	15,906	16,135	15,935	15,795	58	..	82
1915	11,068	11,192	11,124	10,920	112	..	92
1916	11,364	11,450	11,460	11,150	192	..	118
1917	11,248	11,302	11,343	11,061	189	..	93
1918	11,906	12,041	11,984	11,741	154	36	52
1919	11,326	11,421	11,383	11,221	114	40	7
1920	13,271	13,440	13,374	13,073	207	93	2
1921	7,978	7,957	8,040	7,875	124	37	3
1922	9,729	9,762	9,815	9,605	172	33	5
1923	10,171	10,140	10,292	10,026	242	22	1
1924	13,639	13,628	13,797	13,478	314	4	(1)
1925	16,123	16,104	16,298	15,927	351	20	(1)
1926	17,755	17,977	18,087	17,407	664	16	(1)
1927	12,783	12,956	13,058	12,484	550	24	(1)
1928	14,297	14,478	14,634	13,931	675	28	(1)
1929	14,548	14,825	14,834	14,233	572	29	(1)
1930	13,756	13,932	14,018	13,470	524	23	(1)
1931	16,629	17,096	16,940	16,304	621	14	(1)
1932	12,710	13,002	13,072	12,338	726	8	(1)
1933	12,664	13,047	12,968	12,351	607	10	(1)
1934	9,472	9,637	9,571	9,359	197	14	(1)
1935	10,420	10,638	10,567	10,255	294	18	(1)
1936	12,141	12,399	12,283	11,982	282	18	1
1937	18,252	18,945	18,415	18,074	327	11	4
1938	11,623	11,944	11,702	11,519	158	21	4
1939	11,481	11,816	11,569	11,365	175	27	2
1940	12,298	12,565	12,300	12,259	3	32	5
1941	10,495	10,742	10,495	10,433	1	58	3
1942	12,438	12,820	12,438	12,363	..	74	1

(1) Fewer than 500 bales.

Source: U. S. Department of Commerce, Bureau of Census, Cotton Production and Distribution, Bulletin 180, Table 3, page 4.

TABLE V

Number of Farms and Farm Population, United States and Cotton States

(000 Omitted)

	Number of Farms		Farm Population	
	1930	1940	1930	1940
United States	6,289	6,097	30,445	30,475
All Cotton States	3,279	3,046	16,403	16,363
Per cent Cotton States are of U. S.	52	50	54	54
Alabama	257	232	1,340	1,344
Florida	59	62	279	308
Georgia	256	216	1,419	1,370
Louisiana	161	150	831	857
Mississippi	313	291	1,363	1,406
North Carolina	280	278	1,600	1,654
South Carolina	158	138	916	916
Tennessee	246	248	1,215	1,276
Virginia	171	175	951	926
TOTAL SOUTH	1,901	1,790	9,914	10,057
Per cent Total South is of U. S.	30	29	33	33
Per cent South is of Cotton States	58	59	60	61
Arkansas	242	217	1,119	1,114
Missouri	256	256	1,115	1,127
Oklahoma	204	180	1,024	935
Texas	495	418	2,352	2,166
TOTAL SOUTHWEST	1,197	1,071	5,610	5,341
Per cent Total Southwest is of U. S.	19	18	18	18
Per cent Southwest is of Cotton States	37	35	34	33
Arizona	14	18	99	115
California	136	133	621	671
New Mexico	31	34	159	179
TOTAL FAR WEST	181	185	879	965
Per cent Total Far West is of U. S.	3	3	3	3
Per cent Far West is of Cotton States	5	6	6	6

Source: U. S. Department of Commerce, Bureau of Census, "Agriculture Summary, 16th Census," 1940.

Cotton States in 1930 and in 1940. Between 1930 and 1940 the number of farms in the Cotton States declined by 233,000, contrasted with an increase of 41,000 in the rest of the United States. The farm population decreased by 40,000 in the Cotton States, but the rest of the United States had an increase of 70,000. These changes are not large percentagewise, but the less favorable showing of the Cotton States is noteworthy, especially as in 1940 there were in the Cotton States 50 per cent of all the farms and 54 per cent of the entire farm population of the United States. Price conditions for cotton as outlined on pages 18 and 19 may have a bearing upon these decreases in the Cotton States.

Cotton Farms

Table VI shows the numbers of all farms and of cotton farms in the United States and in the Cotton States in 1930 and 1940.

In some of the Cotton States practically all farms are cotton farms. For instance, in Mississippi 89 per cent, in Alabama 87 per cent, in South Carolina 81 per cent, in Georgia 77 per cent, in Louisiana 76 per cent, in Arkansas 70 per cent, and in Texas 65 percent of all farms were cotton farms in 1940. In the cotton producing states in the South, excluding Virginia and Florida, cotton farms on the average were 67 per cent of all farms. In the three larger Southwestern cotton-growing states of Arkansas, Oklahoma, and Texas 63 per cent of the farms were cotton farms in 1940.

Of the 3,046,000 farms in the Cotton Belt in 1940, cotton farms totaled 1,588,000, or 52 per cent. This is a marked reduction under 1930, when 61 per cent of all farms were cotton farms. Similar large reductions took place in each of the several Cotton States, except in Mississippi, South Carolina, Missouri, and California. The two latter states had small increases. The decline was 10 percentage points for the Southern group as a whole and 12 percentage points for the Southwestern group. There were especially heavy decreases in the percentage ratio of cotton farms to all farms in North

TABLE VI

All Farms and Cotton Farms, United States and Cotton States
(000 Omitted)

	Number of All Farms		Number of Cotton Farms		Cotton Farms Per cent of All Farms	
	1930	1940	1930	1940	1930	1940
United States	6,289	6,097	1,987	1,590	32	26
Cotton States	3,279	3,046	1,984	1,588	61	52
Alabama	257	232	232	201	90	87
Florida	59	62	12	9	20	14
Georgia	256	216	207	167	81	77
Louisiana	161	150	129	114	80	76
Mississippi	313	291	282	260	90	89
North Carolina	280	278	152	103	54	37
South Carolina	158	138	131	112	83	81
Tennessee	246	248	88	77	36	31
Virginia	171	175	14	7	8	4
Total	1,901	1,790	1,247	1,050	61	51
Arkansas	242	217	192	151	79	70
Missouri	256	256	16	17	6	7
Oklahoma	204	180	123	87	61	48
Texas	495	418	395	273	80	65
Total	1,197	1,071	726	528	61	49
Arizona	14	18	3	2	24	11
California	136	133	4	5	3	4
New Mexico	31	34	4	3	12	8
Total	181	185	11	10	6	6

Source: U. S. Department of Commerce, Bureau of the Census. "Agriculture Summary, 16th Census," 1940.

Carolina, Oklahoma and Texas. In 1940 a little more than half the farms in the Cotton States as a whole were cotton farms, while in the Southwestern group of states cotton farms were slightly less than half. Probably some of the reduction in cotton farms is accounted for by co-operation of the Federal and state governments and the cotton farmers to reduce cotton acreage and by the consolidation of small farms into larger farms.

Size of Farms

Table VII shows the average size of farms in

TABLE VII

Average Size of All Farms, and Ratio of Cotton Farms to All Farms, United States and Cotton States

	Average Size of Farms Acres		Cotton Farms Per cent of all Farms
	1930	1940	1940
United States	157	174	26
Alabama	68	83	87
Florida	85	134	14
Georgia	86	110	77
Louisiana	58	67	76
Mississippi	55	66	89
North Carolina	65	68	37
South Carolina	66	82	81
Tennessee	73	75	31
Virginia	98	94	4
Arkansas	66	83	70
Missouri	132	136	7
Oklahoma	166	194	48
Texas	252	329	65
Arizona	743	1,389	11
California	224	230	4
New Mexico	982	1,139	8

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, "Tabulations from U. S. Census regarding the Land and the People on the Land," October, 1941.

1930 and 1940. For convenient reference the percentages of cotton farms to all farms in 1940 are repeated therein from Table VI. While the total number of farms was reduced some 200,000 between 1930 and 1940, the average size of farms increased from 157 to 170 acres per farm in the United States.

Cotton farms in Alabama, Georgia, Louisiana, Mississippi, South Carolina, Arkansas, and Texas averaged 78 per cent of all farms in 1940. The average size of farms in each of the seven states named (and in all other cotton states except Virginia) increased in 1940 over 1930. It follows that cotton farms also increased in size, since such a large percentage of the farms in those states were cotton farms.

Cropland and Cotton Acreage Harvested

Of the land in farms, that which is of particular interest for this study is the "cropland" and "cotton acreage." These statistics are shown in Table VIII.

Between 1930 and 1940 cropland harvested decreased 11 per cent in the United States and 12 per cent in the Southwest, at the same time increasing 3 per cent in the South and 1 per cent in the Far West. It decreased 1 per cent in the combined South and Southwest areas against 5 per cent in the Cotton States as a whole. Cotton acreage, on the other hand, showed heavy reductions in practically all states during this same period. In all Cotton States it was reduced 47 per cent, in the South 46 per cent, in the Southwest 49 per

TABLE VIII

Cropland and Cotton Acreage Harvested, United States and Cotton States

(000 Omitted)

	1930			1940			1940 Per cent of 1930	
	Cropland	Cotton	Per cent	Cropland	Cotton	Per cent	Cropland	Cotton
United States	359,242	45,091	13	321,242	23,861	7	89	53
Cotton States	122,065	45,072	37	115,500	23,839	21	95	53
Alabama	7,114	3,770	53	7,112	1,961	28	100	52
Florida	1,454	120	8	1,680	65	5	116	54
Georgia	8,337	3,863	46	8,803	1,935	22	106	50
Louisiana	4,068	2,110	52	4,052	1,130	28	100	54
Mississippi	6,597	4,243	64	6,953	2,500	36	105	59
North Carolina	5,810	1,643	28	6,125	829	14	105	50
South Carolina	4,137	2,173	53	4,322	1,234	29	104	57
Tennessee	6,106	1,225	20	6,159	715	12	101	58
Virginia	3,975	89	2	3,840	32	1	97	36
TOTAL SOUTH	47,598	19,236	40	49,046	10,401	21	103	54
Per cent Total South is of U. S.	13	43	..	15	43	..	..	..
Per cent Total South is of C. S.	39	43	..	42	43	..	..	..
Arkansas	6,582	3,908	59	6,610	2,061	31	100	53
Missouri	13,176	369	3	12,400	408	3	94	111
Oklahoma	15,553	3,997	26	12,766	1,822	14	82	46
Texas	30,634	16,950	55	26,044	8,472	33	85	50
TOTAL SOUTHWEST	65,945	25,224	38	57,820	12,763	22	88	51
Per cent Total Southwest is of U. S.	18	56	..	18	54	..	..	..
Per cent Total Southwest is of C. S.	54	56	..	50	54	..	..	..
TOTAL SOUTH AND SOUTHWEST (Minus Florida, Virginia and Missouri)	94,938	43,882	46	88,946	22,659	25	94	52
Per cent of United States	26	97	..	28	95	..	..	..
Per cent of Cotton States	78	97	..	77	95	..	..	..
Arizona	478	215	45	526	220	42	110	102
California	6,550	270	5	6,535	348	5	100	129
New Mexico	1,494	127	9	1,573	107	7	105	84
TOTAL FAR WEST	8,522	612	7	8,634	675	8	101	110
Per cent Total Far West is of U. S.	2	1	..	3	3	..	..	..
Per cent Total Far West is of C. S.	7	1	..	7	3	..	..	..

Sources: U. S. Dept. of Commerce, Bureau of Census, 16th Census of the United States, 1940; Cotton Production and Distribution Bulletins.

cent, and in the combined South and Southwest 48 per cent.

Putting the situation another way, in the Southern and Southwestern states, comprising by far the greatest part of the Cotton Belt, the percentage of cotton land to cropland fell from 46 per cent in 1930 to 25 per cent in 1940. The 1940 percentage is barely more than half the 1930 percentage. This drop of about one-half in the percentage relationship prevails generally throughout the Cotton States, the principal exceptions being the Far Western states and Missouri. It is manifest that more and more cropland is being withdrawn from cotton cultivation.

Cotton acreage in the United States has been controlled by one means or another since the beginning of the 1933 season. Reductions were motivated principally by an over-supply of cotton in the world markets. This in turn was due to increased production in foreign countries, as well as to record crops in this country, during the 10 years beginning with 1924. While the trend in world cotton consumption was upward, it did not nearly equal the upward trend in cotton production. This caused increasingly large carry-overs, with the effect of dropping the price of cotton to its lowest level since the turn of the century.

Leading cotton growers agreed with the Federal Government in 1933 that the best way to meet this situation would be to curtail acreage. Since the 1933 season cotton acreage in the United States has been drastically reduced: first, by mutual agreement, second, by the Bankhead[1] Cotton Act, 1934, and, third, by state-controlled regulation administered by the Federal Government, the last being currently in effect.

Even though total cotton acreage has been reduced about 50 per cent since 1930, cotton in 1940 still constituted 25 per cent of all cropland harvested in the ten principal cotton producing states in the South and Southwest and 42 per cent in Arizona.

Farm Operators

In 1940, of the 6,097,000 farms in the United States, 5,378,000, or 88 per cent, were operated by white operators, while 719,000, or 12 per cent, were operated by non-white operators. The percentage of white operators is not so large in most of the Cotton States as it is in the United States as a whole, as will be seen from Table IX.

Acreage

Cotton acreage, yield per acre and production in the United States for the years 1909-44 are

TABLE IX

Number and Color of Farm Operators, United States and Cotton States, 1940

(000 Omitted)

	White	Non-White	Per cent White of Total
United States	5,378	719	88
Cotton States	2,350	696	78
Alabama	159	73	68
Florida	52	10	84
Georgia	157	59	73
Louisiana	90	60	60
Mississippi	131	160	45
North Carolina	218	60	78
South Carolina	76	62	55
Tennessee	220	28	89
Virginia	140	35	80
Arkansas	160	57	74
Missouri	252	4	99
Oklahoma	166	14	92
Texas	365	53	87
Arizona	10	8	55
California	126	7	95
New Mexico	28	6	84

Sources: U. S. Dept. of Agriculture, Bureau of Agricultural Economics, "Tabulations from U. S. Census Regarding The Land and The People on The Land," 2nd Edition, October, 1941; U. S. Dept. of Commerce, Bureau of Census, 16th Census of the United States, 1940, Agriculture.

[1] For summary of this act, see Appendix, page 95

shown in Table X. Acreage steadily increased from 1909, reaching its peak during the 1926 season, when 47,087,000 acres were harvested. This represented an increase of 52 per cent over 1909, or approximately 17,000,000 more acres. It likewise resulted in the largest production of cotton for any season up to that time, 17,755,000 bales being produced.

After the peak season of 1926, the acreage continued to exceed 40,000,000 acres annually through the 1931 season. The harvesting of such a huge acreage of cotton without a corresponding increase in consumption caused the average price of cotton to the farmer for 1931 to drop to 5.6 cents a pound, the lowest level in modern history. Production amounted in 1931 to 16,630,000 bales.

Thereafter the Agricultural Adjustment Administration [1] took steps to reduce cotton acreage, to bring the supply nearer to normal, and thus to increase the price.

Further curtailment of cotton acreage occurred with the enactment on March 21, 1934, of the Bankhead Act. This act provided that 10,000,000 bales could be ginned free of penalty in the 1934 crop year. Cotton with staple length of 1½ inches and longer was exempted. Other cotton in excess of 10,000,000 bales was subject to a tax of 50 per cent of the average central market price of ⅞-inch Middling spot cotton. In any case, the tax was to be not less than 5 cents per pound.

[1] For summary of the Agricultural Adjustment Act, see Appendix, page 94

TABLE X

Acreage Harvested, Yield Per Acre, and Production—United States

Year	Acreage Harvested (000 Omitted)	Yield Per Acre (Pounds)	Production 500-lb. Bales (000 Omitted)
1909	30,938	154	10,005
1910	32,403	171	11,609
1911	36,045	208	15,693
1912	34,283	191	13,703
1913	37,089	182	14,156
1914	36,832	209	16,135
1915	31,412	170	11,192
1916	34,985	157	11,450
1917	33,841	160	11,302
1918	36,008	160	12,041
1919	33,566	162	11,421
1920	35,878	178	13,440
1921	30,509	125	7,957
1922	33,036	141	9,762
1923	37,123	131	10,140
1924	41,360	157	13,628
1925	46,053	167	16,104
1926	47,087	183	17,977
1927	40,138	155	12,956
1928	45,341	153	14,478
1929	45,793	155	14,825
1930	45,091	148	13,932
1931	40,693	201	17,096
1932	35,939	173	13,002
1933	29,978	209	13,047
1934	26,987	171	9,637
1935	27,335	186	10,638
1936	30,028	198	12,399
1937	33,623	270	18,945
1938	24,248	236	11,944
1939	23,805	238	11,816
1940	23,861	253	12,565
1941	22,238	232	10,742
1942	22,602	273	12,824
1943	21,652	254	11,427
1944(1)	20,164	273	11,483

(1) September 8, 1944, forecast by U. S. Department of Agriculture.

Source: U. S. Department of Agriculture, Agricultural Statistics and Yearbook of Agriculture.

While acreage reduction was attained, production was not reduced so much as intended. In reducing acreage farmers ceased to use their poorer land and concentrated their work and fertilizer on the better land, which caused the average yield per acre to increase materially. The all-time record crop was grown in 1937, with a production of 18,252,000 bales. This was 89 per cent greater production than in 1909, grown on but 9 per cent greater acreage. A yield of 270 pounds per acre was attained, an all-time high up to then, and 175 per cent of the 1909 yield per acre. Illustrating further the use of better and more fertile land for cotton since the passage of the Bankhead Act, the 1926 and 1937 crop yields are compared as follows:

Year	Acreage Harvested	Yield Per Acre (Pounds)	Ginnings (Bales)
1937	33,623,000	270	18,252,000
1926	47,087,000	183	17,755,000

Sources: U. S. Department of Agriculture, 1928 Year Book: Agricultural Statistics, 1942, Table 136; U. S. Department of Commerce, Bureau of Census, Cotton Production and Distribution, Bulletin 180, Table 3.

Table XI shows acreage harvested, yield per acre and production of American Upland cotton in the United States, in 1910, 1920, 1930 and 1940. Acreage was reduced by more than 8,000,000 acres, or 26 per cent, from 1910 to 1940. During the same period reductions were made of 60 per cent in Georgia, 51 per cent in South Carolina, 45 per cent in Alabama, and 25 per cent in Mississippi. The reduction amounted to 16 per cent in Texas, with small reductions in Tennessee and Arkansas and increased acreage in Louisiana, Missouri and California.

Yield Per Acre

Average yields per acre for the United States as a whole began declining after 1914, reaching a minimum of 125 pounds in 1921. Between 1921 and 1933 the yield approximated prewar levels only in 1926 and 1931. Subsequent to 1932, when acreage was reduced, average yields per acre have shown a very definite upward trend and attained an all-time high of 273 pounds in 1942.

Yield fluctuates somewhat from year to year due to drought, floods, and insect infestation. The principal reason, however, for the marked increase during the past seven years is that farmers have used their better land for cotton and put the inferior land into other crops. Also, with a smaller cotton acreage, they have devoted more attention

TABLE XI

American Upland Cotton Acreage Harvested, Yield Per Acre and Production[1]

	1910			1920			1930			1940		
	Acreage	Yield	Production	Acreage	Yield	Production	Acreage	Yield	Production	Acreage	Yield	Production
United States	32,403	171	11,609	35,878	178	13,440	45,091	148	13,932	23,861	253	12,566
Alabama	3,560	160	1,194	2,858	111	663	3,770	187	1,473	1,961	190	779
Florida	257	110	59	100	86	18	120	200	50	65	154	21
Georgia	4,873	173	1,767	4,900	138	1,415	3,863	197	1,593	1,935	250	1,010
Louisiana	975	120	246	1,470	126	388	2,110	162	715	1,130	194	456
Mississippi	3,317	182	1,263	2,950	145	895	4,243	165	1,464	2,500	240	1,250
North Carolina	1,478	227	706	1,587	275	925	1,643	225	775	829	427	739
South Carolina	2,534	216	1,164	2,964	260	1,623	2,173	220	1,001	1,234	375	966
Tennessee	765	207	332	840	185	325	1,225	147	377	715	340	509
Virginia	33	212	15	42	230	21	89	225	42	32	370	25
Arkansas	2,238	175	821	2,980	195	1,214	3,908	107	874	2,061	349	1,501
Missouri	100	285	60	136	275	79	369	195	151	408	454	388
Oklahoma	2,204	200	923	2,749	230	1,336	3,997	102	854	1,822	211	802
Texas	10,060	145	3,049	11,898	174	4,345	16,950	114	4,038	8,472	184	3,234
Arizona	..	..	..	230	224	103	215	346	155	220	424	195
California	9	335	6	150	266	75	270	468	264	348	749	545
New Mexico	..	..	..	..	..	..	127	375	99	107	576	128
All Other States	12	..	10	24	..	3	19	..	7	22	392	18

[1]Acreage harvested, 000 omitted.
Yield per acre, in pounds.
Production: Bales of 500 pounds gross weight, 000 omitted.

Sources: U. S. Department of Agriculture, Yearbooks 1916-24-28-32-33-34-35, Agricultural Statistics 1936-42, "Cotton Acreage, Yield and Production, 1866 to 1938"; U. S. Dept. of Commerce, Cotton Production and Distribution, Bulletins 107, 114.

to cultivation and insect control and have used more commercial fertilizer per acre.

Yield per acre varies sharply from state to state. Table XII shows the average yield per acre of cotton in the United States and Cotton States, by decades since 1910.

The average yield per acre is much greater in California than in any other state. California has more than doubled its average yield since 1910. The explanation of this tremendous increase is illuminating.

Prior to 1925 many varieties of cotton were grown in California. After much experimenting with various varieties, a type was developed that gave promise of higher yields per acre. This was called Acala.

A state law enacted in 1925 provided that only one variety of cotton (Acala) might be grown in certain prescribed and defined districts. Under the protection afforded by this law and by plant-quarantine regulations, the San Joaquin Valley has become one of the largest one-variety cotton-producing areas in the United States. The United States Department of Agriculture, the California Planting Cottonseed Distributors, and the commercial cotton companies jointly have promoted and facilitated the use of seed of this variety. The supply of parent Acala seed is increased each year, and is distributed under direct supervision of the California Planting Cottonseed Distributors.

Contrasted with the average 1940 yield per acre of 749 pounds in California are yields of 375 pounds in South Carolina, 240 pounds in Mississippi, 194 pounds in Louisiana, 190 pounds in Alabama, and 184 pounds in Texas.

While one-variety production of cotton is practiced in other states to some extent, there is no similar law restricting cotton production to one specified type. Whether results similar to those in California could be obtained with Acala or with some other variety in other cotton-growing states is a question which would appear to be worth investigation by interested railroads.

Chart B presents graphically the yield per acre and total production, by years, from 1909 to 1942. On the whole, the trend in production correlates rather closely with the trend in yield per acre.

TABLE XII

Cotton Yield Per Acre in Pounds

	1910	1920	1930	1940	1940 Per cent of 1910
United States	171	178	148	253	148
Alabama	160	111	187	190	119
Florida	110	86	200	154	140
Georgia	173	138	197	250	145
Louisiana	120	126	162	194	162
Mississippi	182	145	165	240	132
North Carolina	227	275	225	427	188
South Carolina	216	260	220	375	174
Tennessee	207	185	147	340	164
Virginia	212	230	225	370	175
Arkansas	175	195	107	349	199
Missouri	285	275	195	454	159
Oklahoma	200	230	102	211	106
Texas	145	174	114	184	127
Arizona	..	224	346	424	..
California	335	266	468	749	224
New Mexico	..	..	375	576	..

Source: U. S. Department of Agriculture, Agricultural Statistics 1942, Table 139.

Reduction from Full Yield Per Acre

The American cotton crop suffers from floods droughts, and insects rather severely. The total reduction from full yield [1] per acre from all causes averaged 37 per cent of the entire crop for the 34 years 1909-42. The largest reduction, 53 per cent, was in 1921, when the boll weevil did more damage to the cotton crop than in any single year before or since, accounting for more than 31 per

[1] Estimated maximum possible yield.

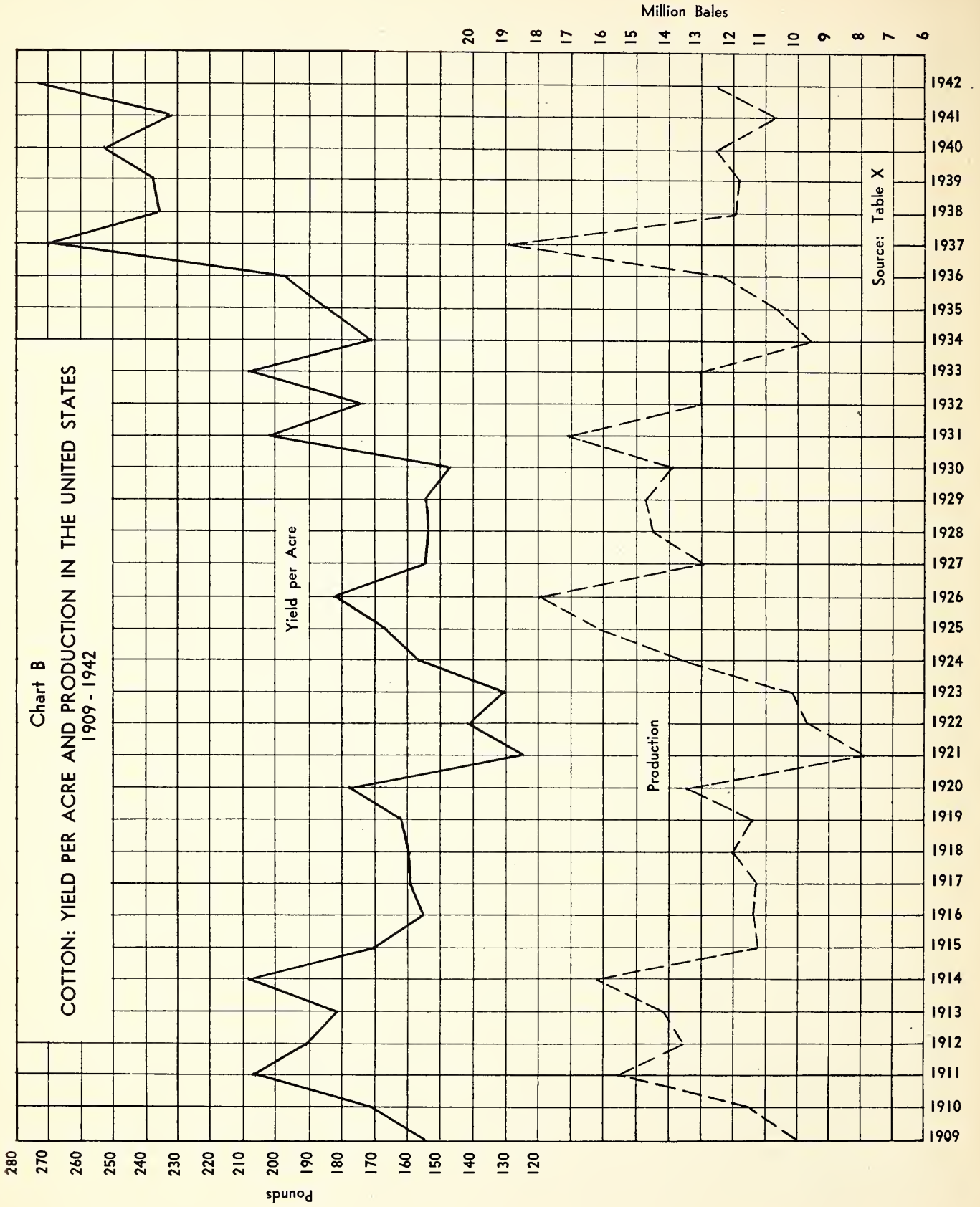


Chart B
COTTON: YIELD PER ACRE AND PRODUCTION IN THE UNITED STATES
1909 - 1942
Yield per Acre
Production
Pounds
Million Bales
Source: Table X
280 270 260 250 240 230 220 210 200 190 180 170 160 150 140 130 120
20 19 18 17 16 15 14 13 12 11 10 9 8 7 6
1942 1941 1940 1939 1938 1937 1936 1935 1934 1933 1932 1931 1930 1929 1928 1927 1926 1925 1924 1923 1922 1921 1920 1919 1918 1917 1916 1915 1914 1913 1912 1911 1910 1909

cent of the diminution. Droughts at various times have caused material decreases from the full yield, as in 1929 and 1930, when the yield was reduced 44 per cent and 47 per cent, respectively. Floods, severe storms and wet weather have resulted in substantial decreases from full yield from time to time; in 1927 and 1928 reductions of 39 per cent and 36 per cent, respectively, were caused by floods in the Mississippi River and storms along the South Atlantic Coast.

While droughts, floods, rainy seasons, and insects bring about reduction from full yield, good weather sometimes offsets these elements. The reduction has been relatively small in the seasons of 1931, 1937, and 1942 as a result of good weather conditions, the damage from all causes amounting to but 28 per cent, 23 per cent, and 22 per cent, respectively.

During the 34-year period 1909-42, reduction from boll weevil damage in the 13 principal cotton growing states averaged 11 per cent.

Commercial Fertilizer Used on Cotton

The total tonnage of commercial fertilizer used on cotton in recent years has been less than formerly. Table XIII shows the total tonnage used on cotton and pounds applied per acre, by years, from 1922 to 1944.

The average tonnage used in the 5-year period 1922-26 was 1,800,000 net tons, compared with 1,490,000 net tons in the period 1938-42. Although the total tonnage of fertilizer applied has been less, the amount applied per acre has been on the increase. The average amount applied per acre for the 5-year period 1922-26 was 263 pounds, whereas for the 5-year period 1938-42 it was 283 pounds. The decrease in total tonnage used along with an increase per acre is accounted for by the average reduction of 17,480,000 acres harvested in 1938-42 under 1922-26.

During the 23-year period 1922-44 the smallest amount of fertilizer used per acre was in 1932, when 206 pounds were applied. The greatest amount used was in 1944, when 328 pounds were applied.

Use of commercial fertilizer per acre on cotton varies extensively among the states. In 1940 Oklahoma and Texas applied but 140 and 170 pounds, respectively, whereas North Carolina and South Carolina applied 420 and 405 pounds, respectively. The average amount applied for the United States as a whole was 277 pounds.

TABLE XIII

Total Amount of Commercial Fertilizer Used and Amount Applied Per Acre When Used on Cotton—United States

Year	Fertilizer Used — Net Tons (000 Omitted)	Fertilizer Used — Pounds Per Acre
1922	1,195	250
1923	1,606	258
1924	1,900	268
1925	2,124	270
1926	2,161	269
1927	1,693	262
1928	2,159	266
1929	2,231	265
1930	2,201	259
1931	1,355	230
1932	865	206
1933	1,207	240
1934	997	245
1935	1,151	259
1936	1,317	261
1937	1,754	280
1938	1,462	282
1939	1,475	280
1940	1,521	277
1941	1,528	285
1942	1,461	293
1943	1,574	313
1944	1,547	328

Source: U. S. Department of Agriculture, "Commercial Fertilizer Used on Cotton, Crop Years 1922–39," August 1940; Cotton Production, August 1, 1941, August 9, 1943, August 8, 1944; Consolidated Cotton Report.

Production

Cotton acreage harvested and cotton production in the United States, by years, from 1909 to 1942, are graphically shown on Chart C. The chart shows wide fluctuations from year to year in both acreage and production. It also shows a fairly regular 5-year or 6-year interval between the peaks of successive upswings in production. The cause of this showing would appear to be worth further exploration.

Cotton production has exceeded 10,000,000 bales annually since 1909, with the exception of 1921 and 1922, when it was reduced by the boll weevil, and in 1934, when acreage was sharply reduced (see Table IV, p. 14).

During the 5-year period 1909-13 domestic production averaged 12,933,000 bales. In 1914 production reached a record of 15,900,000 bales. From 1915 to 1923 reduced acreages and low yields resulted in an average annual production of less than 11,000,000 bales. The lowest production since the

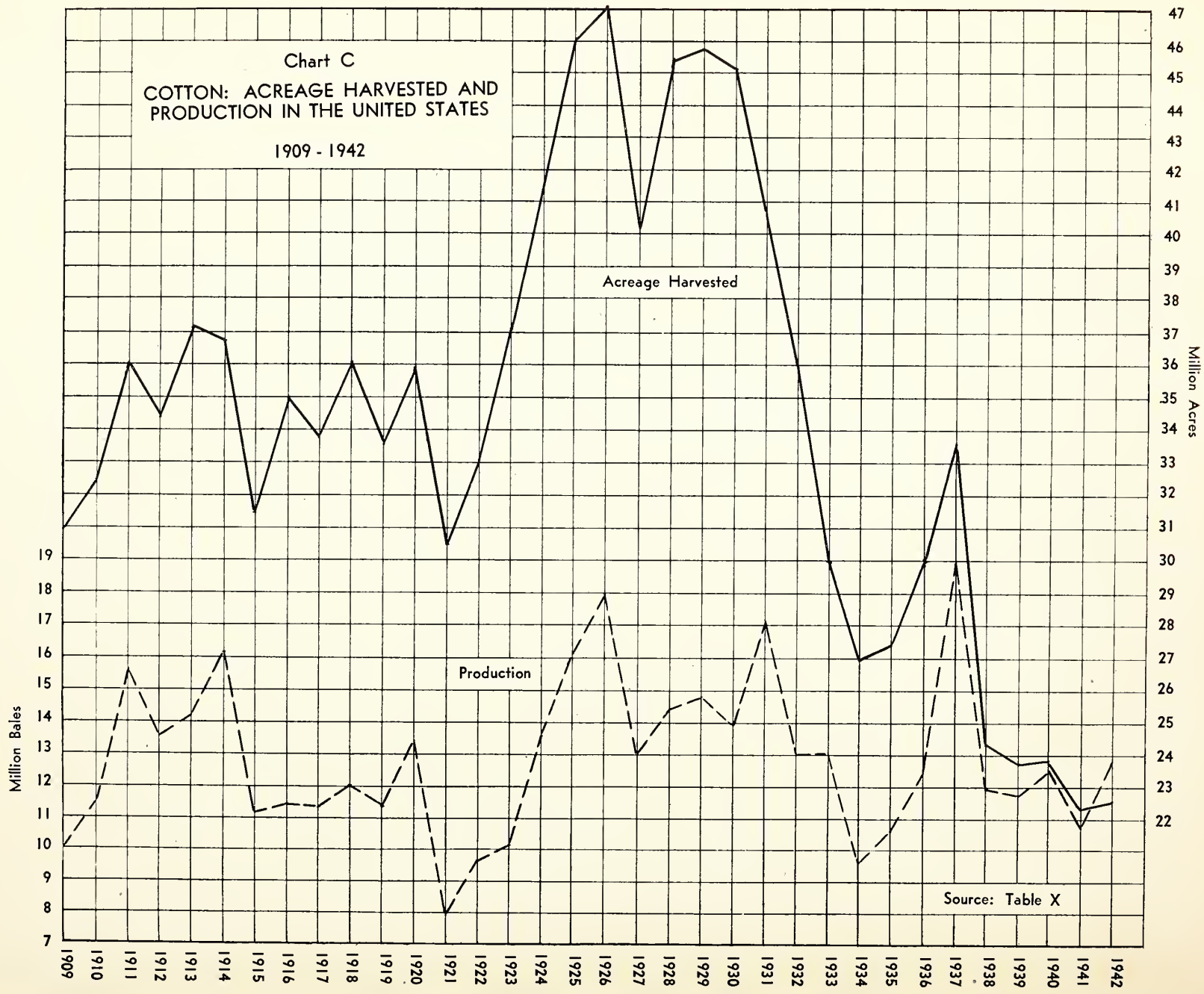


Chart C
COTTON: ACREAGE HARVESTED AND PRODUCTION IN THE UNITED STATES
1909 - 1942
Acreage Harvested
Production
Million Bales
Million Acres
Source: Table X
7 8 9 10 11 12 13 14 15 16 17 18 19
22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47
1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942

turn of the century came in 1921—less than 8,000,000 bales. This was caused principally by the boll weevil, as the crop was reduced 31 per cent by boll-weevil damage, with an all-time record of 53 per cent damage from all causes. While the 1921 acreage was 99 per cent of the 1909 cotton acreage, the production was but 7,987,000 bales, or 80 per cent of the 1909 production. The states that suffered most severely from the boll weevil were Alabama, Florida, Georgia, Mississippi, and South Carolina.

From 1924 through 1931, with a partial recovery in yields and a new high level of acreage, our production averaged 14,940,000 bales, reaching a high of 17,755,000 bales in 1926. This represented an average increase of 2,000,000 bales annually over the 1909-13 production. A downward trend began with the 1932 season as acreage was reduced, largely because of the unusually low price of cotton during the preceding year, when at times it fell as low as 5 cents per pound. Following this our production was affected by decreased cotton acreage. It has ranged from 9,472,000 bales in 1934 to 12,438,000 bales in 1942, with the exception of the 1937 crop. The latter established a peak of 18,250,000 bales, even though acreage had been reduced 23 per cent below the 1926-31 average.

Rank In and Quantity of Production

Table XIV shows, by decades from 1910, total cotton ginnings, by states, the rank of each state in this respect and the percentage of the ginnings in each state to the total.

Table XV shows total cotton ginnings, by states, for each year from 1909 to 1943. For many years Texas has ranked well ahead of all other states in cotton production. It normally produces around 25 per cent of the entire United States crop. For the 11-year period 1909-19, Georgia ranked second, producing approximately 2,000,000 bales annually and from 8 per cent to 13 per cent of the entire cotton crop. Beginning with 1920, Georgia gradually gave way to other states in rank of production. Georgia felt the effects of the boll weevil in the early 1920's as much as or more than any other state and has never fully recovered. It has not produced as much cotton in any year subsequent to 1919 as it did in its lowest of the preceding 11 years.

TABLE XIV

Total Cotton Ginnings in the United States, Percentage of Total Ginnings, and Rank in Production by Ginnings in Each State

(Running Bales)

	Total Ginnings (000 Omitted)				Rank In Production				Per cent of Total U. S. Ginned [1]			
	1910	1920	1930	1940	1910	1920	1930	1940	1910	1920	1930	1940
United States	11,568	13,271	13,756	12,298	..	..	..	..	..	..	..	..
Alabama	1,192	670	1,445	769	4	8	3	7	10.3	4.9	10.6	6.2
Florida	67	19	51	18	12	15	15	16	.5	.1	.4	.1
Georgia	1,812	1,447	1,597	1,007	2	3	2	4	15.2	10.5	11.4	8.1
Louisiana	247	390	705	449	10	9	9	11	2.1	2.9	5.1	3.6
Mississippi	1,212	900	1,458	1,238	3	7	4	3	10.9	6.7	10.5	10.0
North Carolina	753	949	801	749	8	6	8	8	6.1	6.9	5.6	5.9
South Carolina	1,211	1,652	1,015	946	5	2	5	5	10.0	12.1	7.2	7.7
Tennessee	321	315	371	503	9	10	10	10	2.9	2.4	2.7	4.0
Virginia	16	22	43	25	13	14	16	15	.1	.2	.3	.2
Arkansas	798	1,182	863	1,477	7	5	6	2	7.1	9.0	6.3	12.0
Missouri	59	76	153	399	11	12	13	12	.5	.6	1.1	3.1
Oklahoma	920	1,303	857	765	6	4	7	6	7.9	9.9	6.1	6.3
Texas	2,950	4,148	3,886	3,111	1	1	1	1	26.3	32.3	29.0	25.9
Arizona	[2]	105	151	189	[2]	11	12	13	[2]	.8	1.1	1.6
California	6	78	256	530	[2]	13	11	9	[2]	.6	7.9	4.3
New Mexico	[2]	[2]	96	125	[2]	[2]	14	14	[2]	[2]	.7	.9
All Other	10	13	6	17	..	..	..	..	.1	.1	[3]	.1

[1] Based on equated bales of 500 lbs. gross weight.
[2] Included in "All Other States."
[3] Less than 1/10 of 1 per cent.

Source: U. S. Department of Commerce, Bureau of the Census, "Cotton Production and Distribution Bulletins"; October 1, 1943, Consolidated Cotton Report.

Mississippi has ranked next to Texas in cotton production in 12 of the last 18 years, having produced from 8 per cent to 15 per cent of the total crop. Arkansas and Alabama closely follow. The irrigated-cotton states of Arizona, California, and New Mexico combined have grown approximately 5 per cent of the American cotton crop in each of the last nine years, an increase over former years. The construction of Boulder Dam doubtless has increased cotton production in Arizona and Southern California.

The boll-weevil infestation began in the Southeastern states in 1915 and reached a climax in 1923 in the Carolinas and Southeast. During this period, many cotton farms were abandoned and the preponderance of cotton production shifted from east of the Mississippi River to west of it.

Table XVI shows the percentage of total ginnings in the United States east and west of the Mississippi River at 5-year intervals from 1910 to 1940. It also shows the states where the greatest reductions and increases have occurred.

The largest reductions east of the river have been in Alabama, Florida, Georgia, and South Carolina. West of the river, Arkansas, Missouri, Arizona, California, and New Mexico have shown the largest increases. There were 730,000 more bales ginned in the United States in 1940 than in 1910.

TABLE XV

Production: Ginnings of Cotton, United States, By States, 1909–43, Exclusive of Linters

(In Running Bales, Counting Round as Half Bales)

Beginning Aug. 1	United States	Virginia	North Carolina	South Carolina	Alabama	Georgia	Tennessee	Florida	Mississippi
1909	10,072,731	10,746	633,746	1,137,382	1,040,137	1,850,125	240,757	61,877	1,073,105
1910	11,568,334	16,095	753,087	1,210,968	1,192,179	1,812,178	321,103	67,172	1,212,104
1911	15,553,073	31,099	1,126,276	1,692,146	1,695,284	2,794,295	430,027	94,471	1,169,066
1912	13,488,539	25,499	906,351	1,224,245	1,328,297	1,812,778	267,439	58,833	1,004,376
1913	13,982,811	24,569	837,995	1,418,704	1,483,669	2,346,237	366,786	66,700	1,251,841
1914	15,905,840	25,277	970,479	1,560,195	1,731,751	2,723,094	372,068	90,648	1,217,883
1915	11,068,173	16,357	737,354	1,174,213	1,025,818	1,937,730	296,222	55,354	925,509
1916	11,363,915	27,975	693,672	970,702	552,679	1,852,104	378,064	50,979	800,190
1917	11,248,242	20,155	656,656	1,267,135	520,906	1,885,054	238,806	48,178	886,269
1918	11,906,480	25,235	919,338	1,581,726	789,265	2,117,860	317,962	34,951	1,193,122
1919	11,325,532	23,076	857,253	1,462,277	716,655	1,678,758	301,408	17,317	950,907
1920	13,270,970	21,898	949,484	1,652,177	670,330	1,447,159	314,811	19,443	900,371
1921	7,977,778	16,680	803,620	786,039	587,669	822,621	297,555	12,202	816,961
1922	9,729,306	27,011	879,294	517,464	819,870	735,874	385,860	27,428	985,787
1923	10,170,694	51,982	1,053,402	793,817	599,140	612,812	235,344	13,628	622,617
1924	13,639,399	40,180	860,147	837,815	985,653	1,030,202	355,919	19,756	1,116,350
1925	16,122,516	54,016	1,147,340	929,040	1,356,402	1,192,952	515,130	40,208	1,985,524
1926	17,755,070	51,891	1,246,754	1,025,991	1,470,404	1,498,473	442,052	33,231	1,857,525
1927	12,783,112	30,705	879,677	738,550	1,173,430	1,111,399	355,975	17,361	1,346,489
1928	14,296,549	44,764	869,248	744,390	1,096,624	1,053,205	423,471	20,053	1,462,021
1929	14,547,791	47,991	767,043	833,054	1,307,664	1,339,835	504,282	29,849	1,875,979
1930	13,755,518	42,713	800,582	1,015,273	1,444,886	1,597,475	371,433	51,118	1,458,488
1931	16,628,874	42,477	771,186	1,010,271	1,385,021	1,393,715	577,994	43,405	1,719,454
1932	12,709,647	31,360	680,279	722,229	933,756	861,789	467,491	15,580	1,161,188
1933	12,664,019	34,413	690,506	728,025	951,074	1,093,385	428,881	24,135	1,132,152
1934	9,472,022	32,997	640,924	684,619	936,080	974,868	396,655	24,343	1,121,332
1935	10,420,346	27,619	579,313	738,744	1,033,457	1,052,662	315,602	26,653	1,226,295
1936	12,141,376	30,543	606,681	804,232	1,135,027	1,086,458	422,197	27,654	1,862,515
1937	18,252,075	40,215	780,594	996,175	1,566,602	1,473,984	633,335	35,363	2,561,778
1938	11,623,221	11,083	398,467	641,679	1,064,422	850,691	473,761	21,950	1,655,956
1939	11,481,300	10,345	461,715	852,081	769,696	908,990	432,383	9,671	1,536,263
1940	12,297,970	24,865	748,644	945,718	768,525	1,006,657	502,871	17,916	1,238,286
1941	10,494,881	28,257	568,978	408,098	774,441	637,469	574,121	14,885	1,387,558
1942	12,438,033	28,333	735,079	694,577	892,458	853,348	602,538	14,536	1,886,981
1943	11,127,957	19,710	610,848	692,780	931,573	848,522	479,791	14,146	1,782,989

Table 15 Cont. on Next Page

TABLE XV—(Continued)

Production: Ginnings of Cotton, United States, By States, 1909–43, Exclusive of Linters
(In Running Bales, Counting Round as Half Bales)

Beginning Aug. 1	Louisiana	Arkansas	Oklahoma	Texas	Missouri	Arizona	California	New Mexico	All Other States
1909	258,459	697,603	552,678	2,469,331	44,444	(1)	0	(1)	2,341
1910	246,788	798,156	919,842	2,949,968	58,822	(1)	6,000	(1)	9,872
1911	380,826	908,014	1,016,538	4,107,152	91,119	(1)	9,817	(1)	16,760
1912	374,793	770,937	1,005,109	4,645,309	53,538	(1)	7,934	(1)	11,035
1913	436,865	1,038,293	842,499	3,773,024	63,761	(1)	22,411	(1)	31,868
1914	452,261	999,237	1,232,638	4,390,290	78,409	(1)	48,374	(1)	13,326
1915	336,813	789,583	622,176	3,068,852	46,644	(1)	28,586	(1)	6,962
1916	441,121	1,102,671	813,419	3,562,789	60,466	(1)	43,664	(1)	13,420
1917	629,719	953,587	955,342	3,041,726	58,937	21,140	58,974	(1)	5,658
1918	582,698	957,118	585,149	2,610,337	59,797	54,215	71,479	(1)	6,228
1919	303,035	867,177	1,002,178	2,960,335	62,667	58,472	59,082	(1)	4,935
1920	389,569	1,182,010	1,302,610	4,148,399	76,328	105,191	77,892	(1)	13,298
1921	284,330	788,047	477,777	2,129,660	68,145	42,926	34,809	6,094	2,643
1922	345,407	1,010,520	637,003	3,125,758	139,881	44,132	28,473	12,383	7,161
1923	373,812	643,643	665,904	4,212,248	124,876	77,704	55,313	28,333	6,319
1924	498,386	1,086,814	1,506,077	4,850,956	192,981	109,950	79,938	55,858	12,417
1925	912,246	1,594,389	1,680,304	4,098,249	292,950	115,359	122,260	64,706	23,441
1926	826,179	1,513,382	1,760,644	5,477,788	215,769	120,089	128,835	70,206	15,857
1927	543,153	979,481	1,009,626	4,229,367	116,024	90,281	89,998	64,920	6,676
1928	685,868	1,216,241	1,187,042	4,941,545	146,921	145,731	171,042	82,177	6,206
1929	797,727	1,395,869	1,125,614	3,803,211	220,907	149,467	254,126	86,296	8,877
1930	704,750	863,443	856,748	3,886,126	153,337	150,545	256,337	95,841	6,423
1931	876,593	1,836,132	1,235,856	5,068,779	280,367	110,922	171,238	93,762	11,702
1932	599,473	1,283,432	1,072,022	4,307,383	300,695	67,135	124,361	67,485	13,989
1933	469,260	1,014,645	1,235,851	4,220,275	237,927	92,934	210,682	86,121	13,753
1934	473,333	848,997	329,845	2,314,894	230,368	113,184	251,523	83,689	14,371
1935	541,360	841,518	562,704	2,849,750	182,823	131,541	232,725	70,178	7,402
1936	742,565	1,265,622	289,740	2,825,420	301,267	187,771	436,322	104,999	12,363
1937	1,050,629	1,808,840	756,419	4,952,378	390,219	310,199	723,035	153,812	18,498
1938	651,537	1,301,275	545,196	2,964,238	329,401	191,888	415,466	92,275	13,936
1939	717,921	1,359,884	511,850	2,736,764	427,824	199,830	435,085	93,831	17,167
1940	448,996	1,477,110	764,706	3,111,051	399,488	188,811	530,479	124,705	17,157
1941	310,501	1,381,214	692,303	2,557,702	475,175	176,870	395,569	103,769	25,223
1942	572,347	1,427,890	687,465	2,917,035	414,286	187,703	399,361	104,374	19,722
1943	712,534	1,086,963	373,470	2,701,195	296,366	128,539	333,051	102,132	13,348

(1) Included in "All Other States."

Source: U. S. Department of Commerce, Bureau of Census, Cotton Production and Distribution Bulletins 180, 179, 175, 173, 169, 164, 156, 147, 137, and 125, and Cotton Ginned from the crop of 1943, April 27, 1944.

TABLE XVI

Cotton Production East and West of the Mississippi River and for Selected States

	Percentage of Total						
	1910	1915	1920	1925	1930	1935	1940
East	57	56	45	45	49	48	43
West	43	44	55	55	51	52	57

Running Bales (000 Omitted)

	1910	1940	Reduction
EAST OF RIVER—Total (1)	6,585	5,253	1,332
Alabama	1,192	767	425
Florida	67	18	49
Georgia	1,812	1,007	805
South Carolina	1,211	946	265
			Increase
WEST OF RIVER—Total (1)	4,980	7,045	2,065
Arkansas	798	1,477	679
Missouri	59	399	340
Arizona	0	189	189
California	6	530	524
New Mexico	0	125	125

(1) These totals will not equal total U. S. ginning, as some few bales are ginned outside the Cotton Belt.

Source: U. S. Department of Commerce, Cotton Production and Distribution Bulletins.

Farm Income

In the greater part of the Cotton Belt, cotton is by far the most important crop and the largest source of income. The farm value of the cotton crop from year to year is of great significance to anyone interested in the region as a market. In many farm families receipts from the cotton crop represent all the money available for purchases of consumer goods. Statistics for 1935 showing how income from cotton and cottonseed compares with total farm marketing income and total income payments are presented in Table XVII. The year 1935 has been used in this particular survey because it is the last year prior to the present war for which many of the figures are available.

Of $1,706,000,000 received from farm marketing of all crops in the Cotton Belt during 1935, the cotton and cottonseed crop brought $737,100,000, or 43 per cent. In 1935, in the Southern states 46 per cent, and in the Southwestern states 69 per cent, of all cash income from farm marketings of crops was received from cotton and cottonseed. Obviously, the cotton crop is more important in some states than others. For example, the percentage of the total income from crops that was derived from cotton and cottonseed in 1935 was in Mississippi 87 per cent, in Alabama 84 per cent, in Texas 78 per cent, and in Arkansas 76 per cent. On the other hand, the income from cotton and cottonseed in Florida and Virginia was less than 4 per cent of the total income from all crops in these states.

Probably a more reliable gauge of the importance of the cotton crop to the Cotton Belt states would be a comparison between the value of the cotton and cottonseed crop and the total income payments. In 1935 the value of the cotton crop was 5 per cent of the total income payments in these states combined. However, in the cotton-growing states in the South and Southwest 7 per

TABLE XVII

Income From Farm Marketings and From Cotton, and Total Income Payments, 1935
(000 Omitted)

	Cash Income from Farm Marketings	Estimated Income from Cotton and Cottonseed Crop	Per cent Cotton and Cottonseed to Total	Total Income Payments	Per cent Cotton and Cottonseed to Total Income Payments
United States	$2,978,380	$737,622	25	$57,368,000	1
Total Cotton Belt	1,706,475	737,126	43	14,362,000	5
Per cent Cotton Belt of U. S.	57	100	..	25	..
Alabama	83,940	70,441	84	539,000	13
Florida	79,122	1,694	2	616,000	3
Georgia	112,054	72,903	65	741,000	10
Louisiana	85,846	38,252	45	623,000	6
Mississippi	102,537	89,662	87	331,000	27
North Carolina	187,808	41,182	22	812,000	5
South Carolina	83,685	52,249	62	391,000	13
Tennessee	57,565	22,054	8	693,000	3
Virginia	59,184	1,939	3	798,000	.2
TOTAL SOUTH	851,754	390,376	46	5,540,000	7
Per cent Total South of U. S.	29	53	..	10	..
Arkansas	79,573	60,722	76	357,000	17
Missouri	42,392	12,107	29	1,535,000	.8
Oklahoma	70,666	37,266	53	661,000	6
Texas	262,448	203,737	78	1,958,000	10
TOTAL SOUTHWEST	455,079	313,832	69	4,511,000	7
Per cent Total Southwest of U. S.	15	43	..	8	..
Arizona	25,064	10,329	44	177,000	6
California	364,042	17,286	5	3,993,000	.4
New Mexico	10,545	5,303	50	141,000	4
TOTAL FAR WEST	399,651	32,918	8	4,311,000	.8
Per cent Total Far West of U. S.	13	4	..	7	..

Source: U. S. Department of Commerce, Bureau of the Census, "Cotton Production and Distribution Bulletin 174, Table 10"; U. S. Department of Commerce, "State Income Payments 1929-37," May 1939; U. S. Department of Commerce, Statistical Abstract of the United States, 1942.

cent of the total income payments was derived from the cotton crop. Even this figure tends to understate, as the total includes such minor cotton-producing states as Florida and Virginia. In the major cotton-producing states of Mississippi, South Carolina, and Alabama cotton income represented 27 per cent, 13 per cent, and 13 per cent, respectively, of the total income payments. In Arkansas and Texas 17 per cent and 10 per cent, respectively, of total income payments in these states were derived from the cotton crop. It is unusual that a single agricultural product provides from 10 to 27 per cent of the total income of the people of a state.

The revenue received from cotton in Arizona and New Mexico has been on the increase in the last 15 years. In 1935 it represented 44 per cent and 50 per cent of the total income from farm crop marketings, and 6 per cent and 4 per cent of total income payments, respectively.

Ginneries

Cotton ginneries in the United States have decreased steadily in number since 1909, when there were 26,669 active ginneries. In 1941 there were but 11,148, or 43 per cent of the 1909 total. This reduction has taken place generally throughout the Cotton Belt.

The reduction in ginneries has been caused by two factors: (1) cessation of ginning on local plantations, and (2) replacement of existing ginneries by materially larger ones. With comparable production in 1909 and 1941, the average number of bales ginned per active establishment in 1909 was 278 bales, whereas in 1941 it was 941 bales.

This development reflects, among other things, the development of good all-weather roads throughout the Cotton States. By making longer hauls of cotton to the gin both economically and conveniently possible, such roads promoted the use of larger and better-equipped gins at the expense of the former small neighborhood gins.

Bale Covering

Several kinds of material are used for bagging to cover cotton bales. New or rewoven wide-mesh jute weighing approximately 2 pounds per linear yard is used more extensively than any other type of material. Next in importance is sugar-bag cloth, closely woven from long jute fiber. This is obtained from second-hand raw-sugar bags and weighs approximately 1⅔ pounds per linear yard. These two materials comprise about 94 per cent of all material used for covering cotton bales. The remaining 6 per cent comprises second-hand cotton and burlap bagging.

Usually a pattern for covering square[1] cotton bales consists of six linear yards of material ranging from 42 to 54 inches wide. A survey by the Department of Agriculture for the 1930 season showed that 62.5 per cent of square bales were covered with new or rewoven jute, 31.6 per cent with sugar-bag cloth, and 5.9 per cent with rerolled and miscellaneous bagging; and that 95.2 per cent of the bales were covered with six yards of material each. A round bale is bound with new closely-woven burlap which completely covers it, and no ties are used.

Transportation Value of Ties and Bagging

All bales, except round, are bound with 9 pounds of steel baling ties. Therefore, for a crop of 12,000,000 bales of cotton there is offered annually for transportation from steel mills to gins and compresses 108,000,000 pounds or 54,000 tons of steel ties.

In addition, approximately 13 pounds of bagging are used for covering the bales. Thus, for a crop of 12,000,000 bales of cotton there is also offered 156,000,000 pounds, or 78,000 tons of bagging for transportation.

Ginning Season

Cotton is ginned from August to March. Usually it is ginned as soon as it is picked. Table XVIII illustrates the progress of ginning during the 1910 and 1940 seasons. The bulk of the crop usually has been ginned by November 1.

Cottonseed

After ginning, a small percentage of the seed is saved for planting the next crop. The remainder is sold to cottonseed-oil mills, where it is crushed, after being delinted. The cotton gin detaches the longer fibers of cotton, leaving on the

[1] All types of bales except round bales.

seed a short, fuzzy lint which must be at least partially removed before milling. The delinting process separates this fuzz from the seed. The product is known commercially as cotton linters. Linters move back into the cotton trade. They will be discussed in more detail hereafter in this study.[1]

[1] See pages 81-88.

The great importance of the cottonseed industry deserves emphasis. During the eight seasons 1927-34, a total of 37,101,000 tons of cottonseed were crushed by the cottonseed-oil industry. In the handling of this seed from farmer to final consumer, the distribution of cottonseed-products dollars was as shown in Table XIX[1].

[1] A study of cottonseed and cottonseed oil is now in preparation.

TABLE XVIII

Cotton Ginnings in the United States, by Periods

	1910		1940	
	Ginnings	Per Cent	Ginnings	Per Cent
Aug. 1 to Sept. 1	353,011	3	573,577	5
Sept. 1 to Oct. 1	6,992,942	60(1)	3,317,408	27
Oct. 1 to Nov. 1			5,162,698	42
Nov. 1 to Dec. 1	2,793,759	24	1,780,604	14
Dec. 1 to Jan. 16	1,113,435	10	1,064,458	9
Jan. 16 to Mar. 1	315,187	3	399,225	3
	11,568,334	100	12,297,970	100

(1) September 1 to November 1 in 1910; not separated on October 1 in that year.
Source: U. S. Department of Commerce, Bureau of the Census, Cotton Production and Distribution Bulletin 179.

TABLE XIX

Distribution of Gross Revenue from Cottonseed in the United States

	8-year Total 1927–34	Weighted Average Per Ton	Ratio Based on Cottonseed Dollar
Amount received by farmers	$883,660,000	$23.82	$.643
Transportation	55,182,000	1.49	.040
Conversion costs	279,700,000	7.54	.203
Mill profits	6,065,000	.17	.004
Seed merchants, gross spread (Ginners, Middlemen, etc.)	150,966,000	4.06	.110
TOTAL GROSS REVENUE	$1,375,573,000	$37.08	$1.000

Source: National Cottonseed Products Association, "Cottonseed and Its Products," February 1937, page 27.

Chapter III
Cotton Marketing

Channels of Marketing

Cotton is our only important farm crop which cannot be used until it is processed. The processing must be carried on in specialized plants away from the farm. By contrast, corn and the small grains are immediately usable for feed. The cotton farm supplies raw materials for a long series of commercial processing operations unequaled in the case of any other important field crop. Furthermore, cotton is among the agricultural products most needing co-operation from the railroads to facilitate orderly, successful marketing.

As cotton comes from the field it is not in marketable condition; it must be ginned and baled. In most instances, it thereafter must be further compressed into a more-compact bale and be classified with respect to grade and staple.

The latest available study [1], for the 1935 season, shows that 18 per cent of the cotton crop was sold by the growers in lots of one bale each. Approximately 50 per cent was sold by growers in lots of less than 10 bales; 15 per cent in lots of 50 bales or more; and only about 6 per cent in lots of 100 bales or more.

In the main, textile mills and other cotton consumers require even-running lots of the same grade and staple [2]. The individual farmer is seldom if ever able to supply such lots. Cotton as it comes from one particular farm, even though a few bales, may be of various grades and staples, due to seed mixture, weather, and soil. It must be shipped to a compress or some central concentration point for classification and there assembled with other stocks of like grade and staple to make up a matched lot, before final movement to the consuming points. The usual unit of sales contract is 100 bales.

Due to varying grade and staple, sometimes 10 or 15 bales from one farm may, on reshipment from a concentration point, find their way to as many destinations, depending on the grade and staple of each particular bale. It is the grade and staple of a bale that determine its destination in the consuming markets. Transportation provisions must and do recognize the impracticablity, as a rule, of shipping cotton in matched lots directly from the point of production and ginning to the point of consumption.[1]

Distribution from Gin Points

A small amount of cotton moves direct from ginning point to consuming point. Such movements usually are for extremely short distances. The great bulk of the crop moves from the gin to interior compress or concentration points or to the ports, where there are compress or warehouse facilities.

Compress—Concentration—Warehousing

At a compress or concentration point, the cotton is weighed and tagged for identification. Each bale is then cut so that a suitable sample (usually about one pound) may be taken to be classed for grade, staple and character. A complete record of the bale is made. It is then compressed, sorted, and either reshipped or stored, if at a compress. If at a concentration point, it moves through the same procedure, except that it may not be compressed there; many bales are compressed in transit enroute to ultimate destination. After the bale covering has been cut for sampling, the cut is repaired with patches. Often a bale is cut and patched several times before it is finally disposed of.

The cotton compress or warehouse provides the cotton owner with convenient, safe and adequate storage, including protection from weather and fire. For him and for the buyer of the bale, it provides a sample of guaranteed authenticity. The authenticity of the sample is of great importance to the entire cotton trade, because value depends upon the classification of grade and staple as determined from the sample.

The depositor of each bale placed in storage receives therefor a negotiable warehouse receipt which identifies the individual bale and shows its weight. This receipt is readily accepted by all concerned with cotton as evidencing the bale itself. By its negotiation ownership of the bale freely passes from one to another in the marketing process.

Definition of Grade

Grade of cotton, as the term is most widely understood, is determined by the three factors of color, foreign matter, and ginning preparation.

[1] U. S. Department of Agriculture, "Marketing Practices in Producers Local Cotton Markets," J. W. Wright, May, 1938.

[2] See following pages for explanation of these terms.

[1] See page 48, Rates.

These elements have been standardized in the official Government standards for grades of American cotton [1]. Grade is largely influenced by weather conditions prior to and at harvest, time of and care in harvesting, condition of the cotton at the time of ginning, the kind and condition of the ginning equipment used, and the method of its operation.

The usefulness of cotton for spinning and the quality of the finished products tend to vary directly with the grade of the cotton. Spinning tests [2] have shown, for example, that the quantity of waste removed from the lint by pickers and cards varies on the average from about 6 per cent for strict good middling to 15 per cent for good ordinary. In addition, manufacturing costs tend to be reduced and the quality of the finished products tends to be improved by the use of higher grades.

Grade Names

Grade classification begins with the color of the lint, according to which the respective grades are extra-white, white, spotted, tinged, yellow-stained, gray, and no-grade. Within the major group the terms Middling Fair, Strict Good Middling, Good Middling, Strict Middling, Middling, Strict Low Middling, Low Middling, Strict Good Ordinary, and Good Ordinary, provide a descending scale for variation in minor color attributes, variation in foreign matter, and variation in ginning preparation. Only the White standards include the entire range from Middling Fair to Good Ordinary.

Table XX lists the designations officially adopted for describing the several grades of American Upland cotton.

Grade standards are not the same for cotton of the various world growths, and information with respect to the supply, by grades, of cotton other than American is very incomplete. Data on the supply of American cotton in the United States by grades according to the official standards are available for each year since 1928. They show that large proportions of the supply are of the white grades, middling, strict middling and good middling.

Distribution of American Upland Cotton by Grades

Table XXI shows for selected years from 1928 to 1942 the distribution of the American crop according to color and grade, in percentages of the total crop.

White grades for the 15-year period 1928-42 averaged 84 per cent of the entire American Upland cotton crop. For the five years 1933-37 white grades were 6 per cent below the 15-year average, while the average for the 1928-32 and 1938-42 periods was slightly above the 15-year average. By and large, throughout the Cotton Belt there has been no material advancement in the production of white grades during the past 15 years. White grades were 88 per cent of the crop in 1942 against 87 per cent in 1928.

So many factors influence the grade of cotton that there is no consistency in the grades from year to year, as may be seen from Table XXI. Some states, however, do grow more white cotton than others. For instance, during the 15-year period 1928-42 the average production of white

TABLE XX

Official Standards for Grade of American Upland Cotton

Gray	Extra White	White	Spotted	Tinged	Yellow Stained
		No. 1, or Middling Fair			
		No. 2, or Strict Good Middling			
GMG	GMEW	No. 3, or Good Middling	GMSp.	GMT	GMYS
SMG	SMEW	No. 4, or Strict Middling	SMSp.	SMT	SMYS
MG	MEW	No. 5, or Middling	MSp.	MT	MYS
	SLMEW	No. 6, or Strict Low Middling	SLMSp.	SLMT	
	LMEW	No. 7, or Low Middling	LMSp.	LMT	
	SGOEW	No. 8, or Strict Good Middling			
	GOEW	No. 9, or Good Ordinary			

Source: U. S. Dept. of Agriculture, Miscellaneous Publication No. 310, "The Classification of Cotton", May, 1938, Table 3, p. 17.

[1] See Cotton Standards Act, 1923, Appendix, page 94.

[2] U. S. Department of Agriculture, "Technical Bulletin 699," page 5.

TABLE XXI

Color and Grade of American Upland Cotton

	White Grades (Percentage of all Grades)				Middling Grade or Better (Percentage of all Grades)			
	1928	1933	1938	1942	1928	1933	1938	1942
United States	87	69	78	88	81	84	76	52
Alabama	85	66	82	92	96	95	83	61
Florida	62	59	51	57	76	96	91	54
Georgia	79	69	82	83	71	85	80	53
Louisiana	96	76	55	93	86	84	71	50
Mississippi	97	88	71	98	88	91	70	61
North Carolina	72	74	89	98	85	90	52	36
South Carolina	65	63	86	91	79	86	81	43
Tennessee	86	83	70	87	80	85	67	66
Virginia	84	73	63	99	86	85	55	5
Arkansas	93	84	83	96	79	73	64	58
Missouri	86	71	77	93	41	34	43	48
Oklahoma	86	31	88	74	68	79	88	32
Texas	88	66	76	77	80	84	85	44
Arizona	89	84	84	83	96	96	89	70
California	98	96	88	77	89	96	91	81
New Mexico	93	82	83	88	89	99	90	93

Source: U. S. Department of Agriculture, "Cotton Quality Statistics, 1942–43."

grades was 92 per cent in Arkansas, and 90 per cent in Mississippi and California, but only 70 per cent in Florida, 74 per cent in Oklahoma, and 80 per cent in Texas.

In 1942, due to heavy rains throughout most of the Cotton Belt, the grades Middling or better were reduced to 52 per cent of all grades. In Oklahoma, Texas, North Carolina, and South Carolina less than 50 per cent of the crop was above Middling grade; in Georgia and Arkansas, less than 60 per cent; and in Mississippi only 61 per cent.

Of the grades other than white, spotted predominated, averaging 15 per cent for the 15-year period 1928-42. Other grades make up only about 1 per cent of the crop.

Definition of Staple Length

Staple length of cotton means the normal length by measurement of a typical portion of its fibers [1]. It is determined commercially by a process known as "pulling" the staple. Length of staple is largely influenced by the variety and by the conditions under which the cotton is grown and ginned.

Length of staple has an important bearing upon the strength and fineness of the yarns that can be produced and the costs of the yarns. The longer-staple cottons are generally considered essential for spinning fine yarns and yarns with high strength requirements, but they may be used also in manufacturing medium and coarser yarns. Short staples are used mainly in the production of coarse yarns. Ordinarily, yarns of a given specification can be manufactured from cotton representing a considerable range in length of staple, but the use of the longer staples tends to reduce the manufacturing cost, although increasing the raw-cotton cost.

Table XXII shows for selected years from 1928 to 1942 the distribution of the American Upland crop according to staple length, in percentages of the total crop.

In 1928, the first year for which these statistics are available, the bulk of the supply of American Upland cotton was 29/32″ and less in length. Of the entire crop 56 per cent was that length or below. Since 1928 staple lengths of American cotton have gradually increased. In the 5-year periods 1928-32, 1933-37, and 1938-42 cotton 29/32″ and shorter represented 51 per cent, 41 per cent and 21 per cent, respectively, of our entire crop. A further indication of the decided trend toward longer staples is shown by a comparison of individual years. In 1928, 56 per cent of the crop; in 1933, 40 per cent; in 1938, 22 per cent; and in 1942, 18 per cent, was 29/32″ and shorter staple length.

Some states have shown more progress than others in growing longer staples. For instance, between 1928 and 1942 staple lengths of 29/32″ and less were reduced in Alabama from 94 per cent to 15 per cent of the crop, in Georgia from 83 per cent to 11 per cent, in Mississippi from 35

[1] Order of Secretary of Agriculture, October 25, 1918.

TABLE XXII

Percentage 29/32″ or Shorter Staple American Upland Cotton is of All Lengths

	1928	1933	1938	1942
United States	56	40	22	18
Alabama	94	82	37	15
Florida	84	88	74	12
Georgia	83	73	31	11
Louisiana	43	22	4	4
Mississippi	35	12	2	1
North Carolina	80	44	11	6
South Carolina	62	38	4	.5
Tennessee	62	34	12	10
Virginia	89	78	8	2
Arkansas	40	10	12	3
Missouri	21	18	4	1
Oklahoma	49	38	53	37
Texas	54	44	40	51
Arizona	12	2	4	4
California	14	.1	3	1
New Orleans	14	1	7	6

Source: U. S. Department of Agriculture, "Cotton Quality Statistics, 1942–43."

per cent to 1 per cent, in North Carolina from 80 per cent to 6 per cent, and in Arkansas from 40 per cent to 3 per cent. On the other hand, Texas and Oklahoma have made little progress in growing longer staples. In Texas 54 per cent of production in 1928 and 51 per cent in 1942 was 29/32″ or less. In Oklahoma the corresponding figures are 49 per cent in 1928 and 37 per cent in 1942. The relative precentages of the various staples in selected years are illustrated on Chart D.

Long Staple Cottons

The term "long staple," when applied to American cotton, means cotton 1⅛″ and longer in staple length. During recent years, the United States production of long-staple cotton has consisted almost entirely of Upland cotton with a staple length up to 1-11/32″ and a small quantity of American-Egyptian or Pima with a staple length of from 1⅜″ to 1¾″.

During the 15-year period 1928-42 the annual production of all American cotton averaged 12,855,000 running bales, of which 741,000 bales (6 per cent) were long-staple Upland cotton.

Mississippi produces most of our long-staple Upland cotton. During the 15-year period 1928-42, it accounted for 57 per cent of our total production. For those years the state's average annual yield was 423,000 running bales. Arkansas is the second-largest producer, with an average annual production of 91,000 bales, or 12.3 per cent. California is third, with an average production of 85,000 bales, or 11.5 per cent. No other single state produces as much as 5 per cent of the yield of this type of cotton. The combined production of Louisiana, South Carolina, and Texas averaged 11 per cent of the total long-staple crop during the 15-year period.

In Mississippi most of this cotton is produced in a comparatively small area known as the "Delta," which comprises about 12 counties lying between the Mississippi and Yazoo rivers. In Arkansas it is grown in a comparatively few counties. In Arizona more than three-fourths of the long-staple cotton comes from Maricopa County, and in California practically all of it is produced in five counties. In South Carolina the center of production is in and around Darlington County.

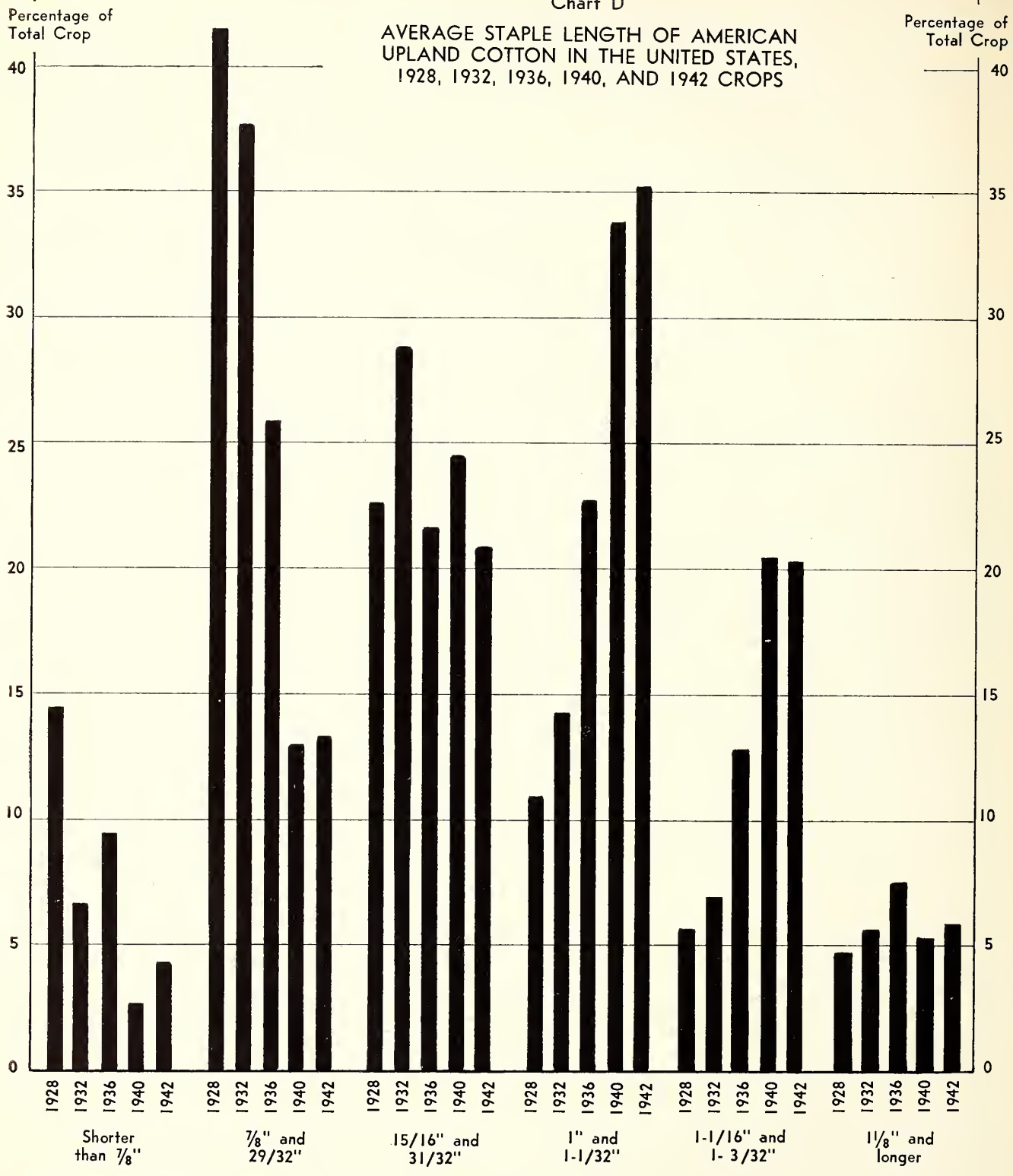
Definition of Character

Character comprises those elements of cotton quality not included in grade and staple length. At present there are no prescribed standards of character, nor is there entire agreement as to all the quality elements that should be included in character.

The ultimate purpose of character classification is to round out the appraisal of different cottons for marketing and manufacturing purposes. Cottons of a given grade and staple produce satisfactory yarn in some cases and unsatisfactory yarn in others. The reason for the difference is

Chart D

AVERAGE STAPLE LENGTH OF AMERICAN UPLAND COTTON IN THE UNITED STATES, 1928, 1932, 1936, 1940, AND 1942 CROPS



Source: U. S. Dept. of Agriculture, Bureau of Agricultural Economics.

usually ascribed to character. Through experience, classers and millmen become familiar with the characteristics of cotton that will or will not give good spinning results for their particular purpose. Good cottons are usually spoken of as "hard-bodied" or "strong" cottons, and poor cottons are usually referred to as "soft", "weak", "irregular", "weak and wasty", or "perished".

American Egyptian Cotton

American Egyptian cotton is grown only in Arizona, New Mexico, and Texas. American mills, mostly in New England, consume practically all of it. The annual production of this type of cotton for the 14-year period 1928-41 averaged 22,000 bales, of which 81 per cent was of 1½" to 1-19/32" length.

Grade factors for this cotton differ from those for "Upland" cotton. American Egyptian cotton is more yellowish in color than Upland. American Egyptian cotton is ginned on roller gins and therefor looks more stringy and lumpy.

Standards for American Egyptian cotton are prepared in physical form in five grades, numbered in order of descending quality from 1 to 5. There are also four descriptive half-grades which fall between the respective full grades. Cotton lower than No. 5 is designated as "below Grade 5".

Grade and Staple

The American Egyptian cotton crop ginned in the United States in 1941 totaled 57,929 bales, which were distributed by grades as follows:

Grade	Bales	Percentage
1 and 1½	22,470	38.8
2 and 2½	23,077	39.8
3 and 3½	10,787	18.6
4 and 4½	1,307	2.3
5 and below	288	.5
TOTAL	57,929	100.0

Compresses

During the 1937 season there were 367 compresses in the United States, of which 266, or 72 per cent, had high-density facilities. Compresses employ about 26,000 persons annually.

Table XXIII shows the number of cotton compresses in the United States in 1937, by states, with a separation of those having high-density facilities.

Of the total, Texas had 39 per cent, of which 81 per cent had high-density facilities. Mississippi ranked next with 14 per cent of the total, of which 52 per cent had high-density facilities.

TABLE XXIII

Number of Cotton Compresses and Those Having High-Density Facilities

Season 1937

State	Total Number	Number with High-Density Facilities
Alabama	16	14
Florida	2	2
Georgia	23	15
Louisiana	31	25
Mississippi	52	27
North Carolina	2	1
South Carolina	8	6
Tennessee	14	10
Virginia	2	2
Sub-total	150	102
Arkansas	36	20
Oklahoma	23	20
Texas	142	115
Sub-total	201	155
Arizona	1	1
California	5	3
New Mexico	2	1
Sub-total	8	5
Illinois	1	..
Maine	6	3
New Jersey	1	1
Sub-total	8	4
TOTAL	367	266

Source: University of Tennessee, Department of Agricultural Economics and Rural Sociology, Agricultural Experiment Station, April 1938.

The usual cost over most of the Cotton Belt for standard compression is 60 cents per bale, approximating 12 cents per hundred pounds. For high-density compression, whether from standard or gin density, the usual rate is 75 cents per bale, or about 15 cents per hundred pounds. Rates are somewhat higher in some of the western states, particularly Arizona and California.

Cotton Markets

In the processes of concentration and subsequent distribution, cotton flows through a succession of markets which fall into four general types, viz.:

1. Local, country or primary;
2. Central concentration;
3. Mill or spinners;
4. Export.

As will appear later, a locality may have more than one marketing function and therefore may properly belong in two or more of the foregoing classifications. For example, New Orleans is a

leading export market, but it also is an important central concentration market for shipments to interior mills, and it may also serve as a local market for nearby cotton growers. A mill market also may be a local market.

Markets may be further classified in several different ways, as, for example, according to the type of merchandising engaged in, as spot, futures or speculative markets.

Local, Country or Primary Markets

The Cotton Belt farmer normally sells his cotton in local markets, which are found throughout the Belt. Nearly all local markets have cotton gins. Usually the grower sells to one or another of seven types of middlemen who operate in these markets buying and selling cotton, as follows:

1. Ginners who buy and sell cotton as well as ginning it;
2. Local men who operate as cotton merchants;
3. Representatives of the farmers' co-operative association;
4. Proprietors of country general stores, many of whom sell to farmers on credit throughout the year and take cotton in payment;
5. Resident or traveling representatives of the large merchants whose headquarters are in the central markets;
6. Resident and traveling buyers for cotton mills;
7. Factors or commission men.

Central Concentration Markets

Central concentration markets fall into two classes—interior markets and ports[1]. About three-fourths of the crop moves from the country markets into between 20 and 30 large central markets and thence into mill markets or to ports for export.

The most important buyers in the concentration markets are the large international cotton merchants, who buy cotton from country-market merchants in all parts of the Cotton Belt and ship it to mill markets in all parts of the world. Also, various types of cotton brokers operate in these markets, buying or selling for others on a commission basis.

[1] U. S. Department of Agriculture, Wright, J. W. and McClure, J. H., "The Distribution of American Raw Cotton, Season 1932-33," 1937.

Mill Markets

Mill markets are located at or near large mill centers. Their principal function is the sale of cotton to spinners. Mill markets are more numerous than central markets, but much less numerous than country markets.

One-half to two-thirds of the sellers of cotton in these markets are spot brokers, who sell on commission for merchants of the central markets and the larger country markets. The rest are either local traders who get their cotton in surrounding country markets or resident employees of merchants whose headquarters are in the central markets. Mill representatives who buy directly for the mills are also active in the mill markets. In the southern states these buyers purchase part of their needs from growers who bring the cotton into the mill itself, and from growers and local agencies in nearby country markets. About one-fourth of the cotton used by southern mills is bought in this way.

Export Markets

Export markets are any markets where cotton is sold for export. Most of the export markets also are large concentration centers. One requirement of an export market is that it must have high-density compresses to prepare bales for ocean shipment. An interior concentration center having high-density compresses may be also an export market. Exporters' agents operate in these markets, usually buying cotton from local buyers.

Spot Markets

Any market where cotton is bought and sold may be a spot market. A spot transaction means buying or selling physical cotton for immediate delivery. It is not necessary that the cotton be "on the spot" in the particular market where it is sold.

Under the Cotton Futures Act, 1916, the Secretary of Agriculture has designated fourteen bona-fide spot cotton markets, of which ten—Charleston, Augusta, Savannah, Montgomery, New Orleans, Memphis, Little Rock, Dallas, Houston and Galveston—are the basis for published quotations. The other four designated markets are Norfolk, Atlanta, Mobile and Fort Worth.

Cotton Futures Exchanges

Cotton futures exchanges in the United States are corporations operated on a nonprofit basis

under strict rules and regulations in accordance with the Cotton Futures Act, 1916, and the Commodity Exchange Act, 1936[1]. Their principal purposes are to provide suitable facilities for trading, to establish principles for trading, to adjust controversies, to maintain uniformity in rules, regulations, and usages; to adopt prescribed standards of classification, to provide information connected with cotton, and generally to promote and facilitate trading in cotton. Adherence to strict rules of trading procedure and standards of conduct is enforced, largely through standing committees.

Futures Markets

A cotton-futures market is a place where contracts are made to receive and to deliver stated quantities of cotton during a specified future period at a fixed price for the basic grade and staple length, in accordance with rigidly standardized rules and regulations. These contracts are standardized with respect to size of the contract unit, grades and staple lengths deliverable; classification, weighing, warehousing, and inspection of the cotton; margin requirements; time, place, and manner of making delivery; and other important considerations. This standardization, in accordance with law and with the rules of the cotton exchanges, facilitates trading by minimizing misunderstandings in regard to terms and conditions of sale.

Futures transactions are used primarily for hedging and speculative purposes. There are three cotton-futures exchanges in the United States, at New Orleans, New York, and Chicago. A number of such exchanges also existed abroad before the present war, the most important at Liverpool, England. Others were at Bremen, Germany; La-Havre, France; Osaka, Japan; Alexandria, Egypt; and Bombay, India. The first four dealt in American Upland, the latter two in Egyptian and Indian cottons.

The unit of futures contracts in the United States generally is 50,000 pounds in 100 bales. Some contracts in New Orleans and all contracts in Chicago are for 25,000 pounds in 50 bales.

Deliveries of cotton in settlement of the contract obligation must be made from approved storage places at a designated delivery point during a specified month. The price paid for the basic grade and staple length [1] is fixed in the contract. Provisions are made for additions to and deductions from the contract price for cotton of other tenderable grades and staple lengths offered in settlement. The particular designated point at which delivery is made, the day of the month on which the cotton is tendered, and the number and combinations of tenderable grades and staple lengths to be delivered are at the option of the seller, but notice of intention to deliver generally must be given 5 business days prior to the date of delivery.

Delivery on New York contracts may be made at New York, Norfolk, Charleston, Savannah, Mobile, New Orleans, Houston, and Galveston; on New Orleans contracts at New Orleans, Houston, and Galveston; and on Chicago contracts at Houston and Galveston.

Tenderable Cotton

Tenderable means cotton that is tenderable in settlement of futures contracts under the Cotton Futures Act. Statistics showing the amount of tenderable American Upland cotton have been compiled since 1928.

Upland cotton shorter than 7/8″ staple length or below Low Middling White or Strict Middling Spotted in grade, and all colored cottons, are untenderable in settlement of futures contracts. All American Egyptian cotton below White or Extra White and shorter than 1-1/32″ is untenderable.

During the years 1928 to 1939, inclusive, between 78 per cent and 94 per cent of the American crop was tenderable under futures contracts. During this time non-raingrown (or irrigated) cotton, was between 90 and 99 per cent tenderable. However, revision of the futures contracts in 1940 limited the tenderable qualities of non-raingrown cottons to white and extra-white, Middling or better, 1-1/32″ and longer in staple. This materially reduced the tenderability of these cottons, and the percentage of tenderable fell to 37 per cent in 1940. This change

[1] For summary of these acts, see Appendix, pages 94 and 95.

[1] The basic staple length was middling 7/8″ prior to Aug. 15, 1939. It was then changed by amendment of the Cotton Futures Act to 15/16″. The value of other cottons is expressed as so many points "on" or "off." A point is 1/100 of a cent. "On" means above and "off" means below the base price. Thus 50 points on means one-half cent above Middling 15/16″; 50 points off means the reverse.

had the effect of reducing the average percentage of cotton tenderable in the United States to 76 per cent in 1940 and 77 per cent in 1941, contrasted with 94 per cent in 1938 and 91 per cent in 1939.

Financing the Marketing of Cotton

Cotton moves in trade from the farmer to the spinner or exporter on a cash basis, each seller in turn receiving cash as he disposes of his holdings. Cotton prices apply to the gross weight of the bales, including covering and fastenings.

Cotton being a world crop, its price normally is determined in world markets, from which it is reflected to the smaller markets and thence to the farmers' market. As cotton is not a perishable commodity, it is the year's supply and the estimated year's demand or consumption that determine the price. Each year's supply is made up of the carry-over from the previous year and the current year's production. It is in the great future markets—in the United States, New York principally, then New Orleans and Chicago—that these major forces of demand and supply meet and register their strength.[1]

Prices in Futures Markets

Operating in the futures markets are 1) merchants and others who hedge spot-cotton transactions, and 2) speculators. The main difference between these two groups is that the hedging element uses the futures market to avoid the necessity of forecasting price changes, whereas the speculators seek to profit through forecasting price changes. The great volume of trading and the fact that futures contracts can be settled at their maturity by purchase and delivery of spot cotton serve ordinarily to keep the futures prices approximately related to the spot-cotton situation.

Futures markets have such facilities for assembling information that changes in the supply-and-demand situation for cotton are readily reflected in futures prices. Information on these changes and prices is widely disseminated for the use of buyers and sellers of spot cotton. Consequently, prices of spot cotton tend to move somewhat in accordance with prices of futures contracts. Thus, there is a reciprocal relationship between spot and futures prices.

[1] U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce, "Cotton Production and Distribution in the Gulf Southwest," page. 199.

The prices of spot cotton and of futures contracts generally move together not because one is determined by the other but because they are both determined largely by the aggregate of present and anticipated future conditions of demand and supply. The fact that prices of spot cotton and of futures contracts do vary irregularly and sometimes widely from their normally expected relationship indicates some independence in their movements.

Prices in Central and Other Markets

In the central markets the prices are determined by 1) the price of futures, 2) the volume and nature of mill purchases, and 3) the extent to which the grower wishes to sell his cotton.

In the larger primary markets, where buyers are operating on limits fixed by merchants, they translate those limits into the price they will pay for the cotton. Such a buyer must be able to classify cotton fairly well as to grade and staple, as he is given limits in terms of particular differences.

In some local markets, especially the smaller ones, cotton is sold on a "hog-round" basis, with no atempt to evaluate differences in quality. The bargaining is on the basis of price only, with no consideration to the grade and staple of individual bales. The different markets have developed reputations as offering cotton of a certain grade, and prices settle at the corresponding level. The farmer who brings inferior cotton to market receives the same price as his neighbor who produces high-grade, good-staple cotton. The local buyer operating in such a market under instructions from a larger merchant is given a stated price as a limit. The average of the grade and staple of all the cotton received at the market roughly determines the general price paid.

Price Differences Among Markets

Table XXIV shows yearly average spot prices for middling cotton at the ten designated markets[1] at 5-year intervals from 1915 to 1940.

Prices of cotton of the same grade and staple differ somewhat from one central market to another. These differences are due largely to differences in transportation costs to centers of consumption, differences in terms and conditions of sale, and differences in the character of the cotton

[1] See page 38.

TABLE XXIV

Spot Prices Per Pound For Middling Cotton At Ten Designated Markets

Year Beginning August 1

Market	7/8-inch					15/16-inch
	1915	1920	1925	1930	1935	1940
Norfolk	11.62	16.92	19.78	10.11	11.76	11.19
Augusta	11.56	16.62	19.53	9.73	11.82	11.47
Savannah	11.72	17.20	19.53	9.73	11.82	11.23
Montgomery	11.37	16.37	18.98	9.28	11.40	11.02
New Orleans	11.69	16.55	19.71	10.08	11.65	11.06
Memphis	11.83	17.20	19.77	9.22	11.50	10.86
Little Rock	11.84	16.69	19.70	9.11	11.41	10.79
Dallas	11.51	15.79	19.64	9.19	11.20	10.65
Houston	12.00	16.33	20.00	9.74	11.56	10.86
Galveston	12.06	16.89	20.12	9.82	11.54	10.86
Average (1)	11.72	16.66	19.68	9.61	11.55	11.00

(1) Averages of monthly averages of the ten markets.

Source: U. S. Department of Agriculture, "Agricultural Statistics, 1942", Table 155.

sold. Prices in markets located in surplus-producing areas that are long distances from consuming centers generally are lower than prices of cotton of the same quality sold on the same terms and conditions in markets near centers of consumption.

As may be seen from Table XXIV, 1940 spot prices for Middling 15/16" cotton in Augusta, a market in the consuming area of the Southeastern States, averaged 0.61 cent per pound higher than at Houston, an important port market, and 0.82 cent higher than at Dallas, a market in a surplus-producing area far removed from consuming centers.

The Cotton Futures Act, 1916, requires that commercial differences for grade used in the settlement of futures-contract obligations be determined from sales of spot cotton in not less than 5 of the 10 bona-fide spot-cotton markets designated as such by the Secretary of Agriculture[1]. To carry out the law, there is maintained in each of these markets a competent quotations committee, the organization and personnel of which are subject to the approval of the Chief of the Bureau of Agricultural Economics, U. S. Department of Agriculture. The committee is required to obtain complete, detailed information not later than the close of business each day as to all sales of spot cotton since the preceding close, including the grades, the prices or basis prices, and the terms and conditions of sale.

In each of the 10 markets daily quotations are published at the close of the futures market showing the price of Middling 15/16" cotton and the premiums and discounts for 31 other grades.

[1] See page 38.

Cotton Prices Received

The farm price compiled by the Department of Agriculture differs from market prices in that it covers whatever grade the farmer sells, which varies from year to year and from place to place, and is taken as of one day in the month, not an average for the month. Market prices are for middling grade, with premiums and discounts for various grades and staple lengths. Information is not available to determine the grade upon which farm prices are based. Farm prices for the years 1915 to 1943, inclusive, together with market prices of spot cotton, and average parity prices, 1922 to 1943, are shown in Table XXV. Chart E graphically illustrates the relationship of farm and market prices, by years, from 1915 to 1942.

As shown in Table XXV, cotton prices rose during World War I, reaching their peak in 1919. Soon after the war, in 1920 and 1921, they slumped, but as a result of the short crops of 1921-22-23 prices again increased. Cotton acreage in the United States and in foreign countries was expanding by leaps and bounds, with resultant high production. The then-record acreage and production of 1926 caused a severe drop in price. This temporarily checked further acreage expansion, and prices resumed their upward trend, halting only at the beginning of the general depression in 1929. They then fell sharply to an all-time low in 1931, when the market price averaged 5.9 cents. Beginning in 1929, the federal government in an effort to support cotton prices offered loans on varying bases.

A small price rally occurred in 1932, and by 1933 the price of cotton was almost 11 cents a

TABLE XXV

Average Season Price for Cotton Received by Farmers, and Average Spot Price at Ten Designated Markets for Middling Grade 7/8" (prior to 1937), and 15/16" (thereafter), Also Average Parity Price

(Cents Per Pound)

Year	Received by Farmers	Spot Ten Designated Markets	Average Parity Price	Year	Received by Farmers	Spot Ten Designated Markets	Average Parity Price
1915	11.3	11.7	..	1929	16.4	15.8	20.3
1916	19.6	19.0	..	1930	9.5	9.6	18.6
1917	27.7	29.0	..	1931	5.7	5.9	16.1
1918	27.6	9.8	..	1932	6.5	7.2	14.6
1919	35.6	38.3	..	1933	9.7	10.8	15.7
1920	13.9	16.7	..	1934	12.4	12.4	16.3
1921	16.2	18.1	..	1935	11.1	11.6	15.7
1922	23.8	25.8	20.7	1936	12.3	12.7	16.5
1923	31.0	30.1	20.6	1937	8.4	9.1	16.0
1924	22.6	24.2	21.0	1938	8.6	9.0	15.3
1925	18.2	19.7	20.9	1939	9.1	10.1	15.5
1926	10.9	14.4	20.7	1940	9.9	11.0	15.7
1927	19.6	19.7	20.7	1941	16.8	18.3	17.9
1928	18.0	18.7	20.7	1942	19.0	20.1	19.5
				1943	19.9	20.7	20.8

Source: U. S. Dept. of Commerce, "Cotton Production and Distribution"; Bulletins, U. S. Department of Agriculture, Agricultural Statistics, 1942, Table 155. War Food Administration, Weekly Cotton Market Review, Sept. 2, 1944. Although the Cotton Futures Act was not revised until Aug. 15, 1939, to make 15/16" cotton the base, most markets made 15/16" the base in 1937; hence the reason for the change in 1937 rather than in 1939.

pound. The latter was due to the Agricultural Adjustment Administration[1] program, which offered loans of 10 cents per pound during the season and cut the cotton crop by having growers plow under 10,500,000 acres of growing cotton.

In the 1934 and 1935 seasons the Bankhead Act[2] reduced cotton acreage, and the Agricultural Adjustment Administration lent 12 and 10 cents a pound to growers in 1934 and 1935, respectively. The average market price in 1935 was approximately twice that in 1931.

In 1936, the Supreme Court declared the Agricultural Adjustment Act unconstitutional, and Congress therefore repealed the Bankhead Act. While acreage increased because of this action, consumption also increased. World industrial activity was mounting, and American cotton was in demand, advancing the average price of cotton slightly.

With crop control regulation abolished and fairly good prices in 1936, cotton acreage increased in 1937 by almost 7,000,000 acres over 1934, and production was the largest in our history. This, coupled with the general business recession, caused average market prices to decline again in both 1937 and 1938.

The outbreak of war in Europe in September, 1939, increased cotton prices, and the average price per pound in 1939 was about 1 cent higher than in 1938, advancing again by about the same amount in 1940. As a result of the spread of hostilities during 1941, cotton consumption in the United States rose to the highest level on record. Commodity prices were increasing generally, and cotton rose to its highest price since the depression began in 1929.

Distribution of American Cotton

Table XXVI shows by states for the 1932 season[1] the primary distribution of American cotton according to various types of destination.

Table XXVI shows that most of the cotton produced in the Southeast in 1932 moved to mill centers within that region. Of the total 1932 production, in Alabama 64 per cent moved to local consuming centers, in Georgia 78 per cent, in North Carolina 89 per cent, and in South Carolina 80 per cent. For the crop as a whole only 25 per cent moved to local consuming centers.

Interior markets and consuming centers in other states received the majority of the cotton produced in Arkansas, Mississippi, and Missouri; 67 per cent of Arkansas production moved to these markets; 49 per cent of Mississippi production, and 58 per cent of Missouri production.

The predominant primary movement of cotton grown in 1932 in Arizona, California, Florida,

[1] For summary of the Agricultural Adjustment Act, see appendix, page 94.

[2] For summary of this Act, see appendix, page 95.

[1] This was a special study which has not been repeated. Its findings may not be representative of present conditions.

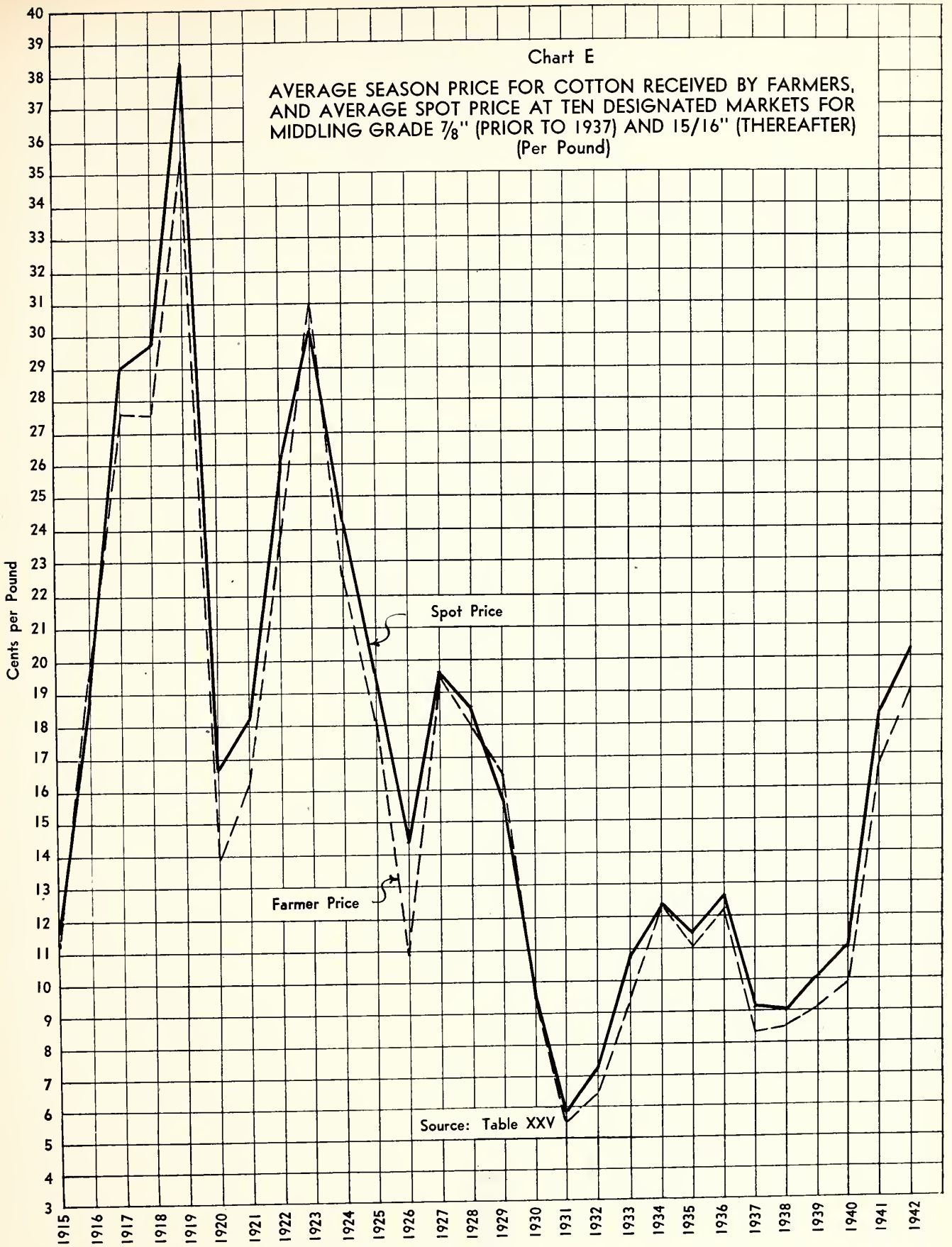


Chart E
AVERAGE SEASON PRICE FOR COTTON RECEIVED BY FARMERS, AND AVERAGE SPOT PRICE AT TEN DESIGNATED MARKETS FOR MIDDLING GRADE 7/8" (PRIOR TO 1937) AND 15/16" (THEREAFTER)
(Per Pound)
Cents per Pound
Spot Price
Farmer Price
Source: Table XXV

Louisiana, New Mexico, Oklahoma, and Texas was to the ports, the average port distribution for the United States representing 59 per cent of production. Of the total primary movement accounted for, more than 92 per cent in Texas and 69 per cent in Oklahoma was to Texas ports. New Mexico cotton also moved principally to Texas ports. California ports received almost the entire production of Arizona and California, while Louisiana cotton was concentrated largely at Lake Charles and New Orleans.

Approximately 41 per cent of the primary distribution of American cotton in 1932 was to domestic consuming centers, 83 per cent of this moving to mill centers in cotton-producing states and 17 per cent to mill centers in other states.

TABLE XXVI

Primary Distribution of American Cotton—Season 1932

Producing State	Local Consuming Centers Per cent	Distribution to — Interior Markets and Consuming Centers in Other Regions Per cent	Distribution to — Ports or foreign Destinations Per cent
Alabama	64.0	2.0	34.0
Arizona	..	4.3	95.7
Arkansas	..	66.6	33.4
California	6.3	..	93.7
Florida	..	2.5	97.5
Georgia	78.1	1.3	20.6
Illinois	..	100.0	..
Kentucky	..	100.0	..
Louisiana	..	10.3	89.7
Mississippi	3.8	48.7	47.5
Missouri	..	58.1	41.9
New Mexico	..	..	100.0
North Carolina	88.9	1.6	9.5
Oklahoma	..	23.5	76.5
South Carolina	80.5	.9	18.6
Tennessee	47.1	38.6	14.3
Texas	1.9	.3	97.8
Virginia	55.0	1.6	43.4
United States	24.5	16.4	59.1

Source: U. S. Dept. of Agriculture, "The Distribution of American Raw Cotton, Season 1932–33," January, 1937, Table 1, p. 14. Cotton from Alabama, Georgia, North Carolina, South Carolina, Tennessee, and Virginia distributed to mills in those states is included under "local consuming centers."

Types of Bales Received by Domestic Mills

In 1933 the Bureau of Agricultural Economics of the Department of Agriculture made a study of the 1930 cotton crop to determine the types of bales received throughout the cotton-consuming area. Table XXVII shows a breakdown of the different types of bales received by the mills in the 1930 season. This is the most recent information of its kind available, but may not be representative of present conditions.

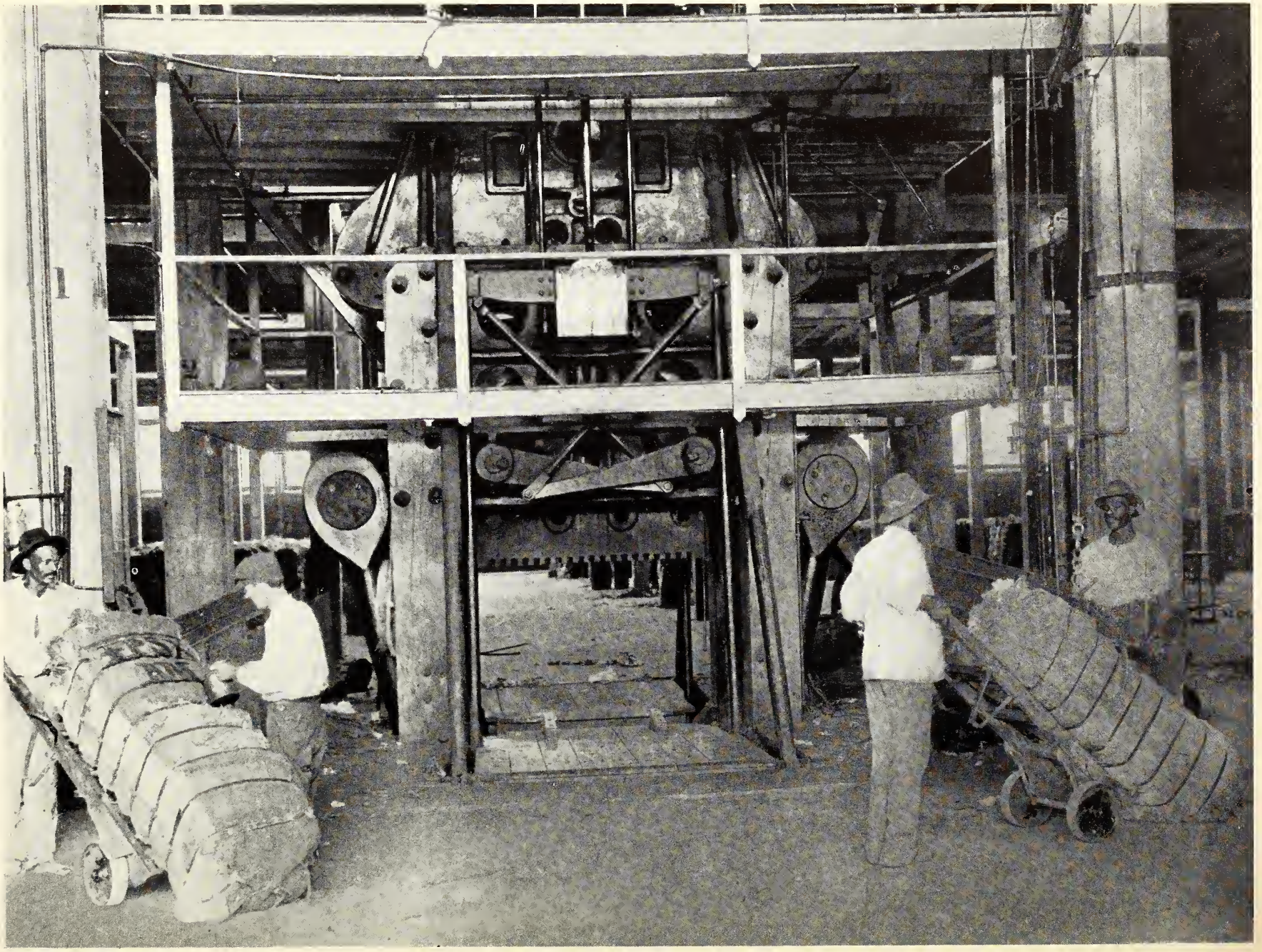
Domestic cotton mills received 94 per cent of their requirements in standard-density and gin bales and 5.6 per cent in high-density bales. Only .3 per cent was received in round bales. Of the 94 per cent in standard-density and gin bales, 56.5 per cent was received in standard-density and 37.5 per cent in gin bales. No gin bales moved out of the cotton-growing states, indicating that gin bales usually move for short distances. Practically all high-density bales moved to the New England states, and round bales to Texas.

TABLE XXVII

Types of Bales Received by Domestic Cotton Mills—Season 1930

State	Percentage of Each Type of Bale Received			
	Gin	Standard Density	High Density	Round
Alabama	76.9	23.0	.1	..
Connecticut	..	75.0	25.0	..
Georgia	57.1	42.5	.3	.1
Louisiana	28.0	63.0	9.0	..
Maine	..	53.3	46.7	..
Massachusetts	..	79.9	20.1	..
New Hampshire	..	66.7	33.3	..
New York	..	93.7	6.3	..
North Carolina	30.0	68.6	1.4	..
Oklahoma	100.0	..	..	..
Rhode Island	..	80.0	20.0	..
South Carolina	40.0	57.8	2.2	..
Tennessee	23.8	76.2	..	..
Texas	60.3	26.0	6.9	6.8
Virginia	48.8	48.7	2.5	..
United States	37.5	56.6	5.6	.3

Source: U. S. Department of Agriculture, Bureau of Agricultural Economics, American Cotton, Tare Practices and Problems, April, 1933, p. 27.



Illinois Central System

Baling press for making gin bales. (Man at left is marking the bale for identification.)

Chapter IV
Transportation

Rates

For many years the railroads, with but minor exceptions, maintained only any-quantity rates on cotton. All cotton rates were subject to concentration and transit arrangements that were very broad and permitted stopping shipments in transit for compression, warehousing or concentration. These arrangements authorized protection of through rates from origin to destination, with no limit on the number of times a shipment could be stopped, except that within the Southwest shipments were generally limited to two stops.

On July 15, 1930, the Interstate Commerce Commission, after a comprehensive study of practically all cotton rates, approved or prescribed rates on cotton from most producing areas. This proceeding was titled Docket 17000, *Rate Structure Investigation, part 3, Cotton*[1]. Compressed-in-transit rates were approved or prescribed in this decision in the light of the existing compress charge of 15 cents east and 18 cents west of the Mississippi River.

Southwest

Maximum any-quantity rates on cotton from Southwestern origins prescribed by the Interstate Commerce Commission in Docket 17000, Part 3, became effective June 15, 1931. The Commission prescribed three bases of rates, viz., those on uncompressed cotton, i.e., cotton delivered uncompressed to go through to destination in that form; compressed-in-transit, or as more commonly known, C.I.T. rates, i.e., rates on cotton tendered uncompressed to be compressed by and at the expense of the carrier; and compressed rates, i.e., rates on cotton tendered the carrier compressed.

Carload rates on cotton were first established by Southwestern carriers on August 29, 1932. These rates were subject to varying minimum weights and provided for the same transit arrangements as formerly applicable in connection with the any-quantity rates. They represented substantial reductions under the any-quantity rates. For instance, from Memphis, Little Rock, and Oklahoma City to Boston, the established carload rates per hundred pounds were 74 cents, 89 cents, and 116 cents, respectively, as compared with the any-quantity rates of 118 cents, 128 cents, and 141 cents, respectively. These rates were reduced again in the latter part of 1932.

Within the Southwest and from the larger part of the Southwest to Texas and Louisiana Gulf ports a system of carload rates was established subject to minimum weights of 25,000, 50,000, and 75,000 pounds, the measure of the rate being determined by the weight of the lading. Carload rates were likewise established in 1932 from the Southwest to the Southeast and Carolinas. Here the rates were made subject to minimum weights of 25,000 and 37,000 pounds.

In October, 1933, the Interstate Commerce Commission instituted upon its own motion an investigation into and concerning the lawfulness of the rates, rules, regulations, and practices applicable to the transportation of cotton within and from the Southwest. As a result of this investigation in Docket 26235, *Cotton from and to Points in the Southwest and Memphis*,[1] the Commission found the rates established to meet competition of other transportation agencies to be not unlawful.

South

As in the Southwest, the rates on cotton within and from the South were before the Interstate Commerce Commission in Docket 17000, Part 3. The Commission approved the then-existing any-quantity rates within and from the Southeast and Carolina territories. These were commonly known as "Compromise" rates, agreed to by the railroads and the shipping interests in 1924. The Commission did, however, prescribe maximum any-quantity rates within and from Mississippi Valley territory, which became effective June 15, 1931.

Mississippi Valley

Carload rates on cotton were established from the Mississippi Valley on August 29, 1932, simultaneously with those from the Southwest. Rates to New England were likewise established to meet competition via truck to the Gulf, thence water to Boston, and truck to interior New England mills. The basic rates are subject to a minimum weight of 25,000 pounds. Rates subject to minimum weights of 35,000 and 50,000 pounds were made 9 cents and 15 cents less, respectively.

There is now pending before the Interstate Com-

[1] 165 ICC 595, 1930.

[1] 208 ICC 677, 1935.

merce Commission, in Docket 28800, a complaint from compress interests to widen the spread between the carload rates subject to minimum weights of 35,000 pounds and 50,000 pounds. The examiner has recommended a differential of 12 cents instead of 6 cents between these rates, to be accomplished by increasing the rates on the 35,000-pound minimum.

Southeast and Carolinas

The railroads in the Southeast and Carolinas also sought to meet truck competition by establishing truck-competitive rates on an any-quantity basis. These rates, for distances up to approximately 500 miles, became effective September 27, 1932, in the Southeast and Carolinas. With only minor changes, they have remained in effect, and they have been applicable on less-than-carload cotton since September 6, 1938.

Effective September 6, 1938, the railroads in this territory established carload rates subject to minimum weights of 25,000 and 50,000 pounds. The carload rates subject to 25,000 pounds minimum were made slight differentials under the compressed-in-transit any-quantity rates.

Movement via Various Transportation Agencies

An indication that the truck-competitive rates did return cotton tonnage to the rails appears in Table XXVIII, which show the percentage distribution by method of transportation of receipts of raw cotton at specified ports during the 1931 and 1932 seasons.

Comprehensive figures showing comparative cotton tonnage by rail and by truck are not available. Table XXIX shows comparative receipts of cotton at Houston by rail and by truck, by years, from 1932 to 1938, and in part of 1939.

Table XXX shows for the seven seasons 1936-42 cotton received at New Orleans via water, truck, and rail and the percentages handled by rail and by competing methods of transportation.

Based upon the 4-year average 1936-39, water and truck carriers handled into New Orleans 13.9 per cent while the rail lines handled 86.1 per cent of the total receipts. As a result of war conditions,

TABLE XXVIII

Distribution of Receipts of Raw Cotton at Specified Ports, by Method of Transportation

Seasons 1931 and 1932

	Percentage of Total					
	Rail		Truck		Water	
Port	1931	1932	1931	1932	1931	1932
Mobile, Ala	34.4	57.2	16.1	15.0	49.5	27.8
Los Angeles, Calif.	77.4	60.3	22.6	39.7	....	....
Savannah, Ga	80.1	83.7	19.4	16.3	.5	....
New Orleans, La	36.1	75.0	3.5	2.3	60.4	22.7(1)
Charleston, S. C.	37.4	39.8	54.5	57.5	8.1	2.7
Galveston, Texas	94.0	98.8	6.0	1.2	....	....
Houston, Texas	55.7	64.0	44.3	36.0	....	(2)
Norfolk, Virginia	48.0	41.5	49.4	50.9	2.6	7.6
TOTAL	61.0	75.8	21.4	16.9	17.6	7.3

(1) Includes 5,853 bales by combined rail and water.
(2) Less than 1/10 of 1 per cent.

Source: U. S. Department of Agriculture, "Distribution of American Raw Cotton, Season 1932–33", J. W. Wright and J. H. McClure, January, 1937.

TABLE XXIX

Cotton Receipts at Houston by Truck and Rail

Season	Receipts-Bales			Per cent of Total	
	Total	By Truck	By Rail	Truck	Rail
1932	2,873,099	947,836	1,925,263	33.0	67.0
1933	2,248,023	465,181	1,782,842	20.7	79.3
1934	1,086,677	335,715	750,962	31.0	69.0
1935	1,732,205	320,547	1,411,658	18.5	81.5
1936	1,303,137	279,342	1,023,795	21.4	78.6
1937	1,835,599	444,986	1,390,613	24.2	75.8
1938	1,042,192	424,069	618,123	40.7	59.3
Aug. 1 to Oct. 13, 1939	769,374	351,564	417,810	45.7	54.3

Source: I. C. C. Docket 26235, 237 I. C. C. 7–9, 1940.

the amount of cotton received at New Orleans via water and truck in the three years 1940-42 combined has been reduced to 2.4 per cent, whereas the receipts via rail have increased to 97.6 per cent of the total.

Memphis and West Memphis, where but 25 per cent of the total was received by truck and 75 per cent by rail. Mr. Bennett testified that these latter were the largest cotton-receiving points among his compresses.

TABLE XXX

Receipts of Cotton at New Orleans By Various Methods of Transportation, and Percentage Distribution

	—Bales (000 omitted)—				Percentage	
Season	Rail	Water	Truck	Total	Rail	Water and Truck
1936	1,914	223	39	2,176	87.9	12.1
1937	1,849	309	50	2,208	83.8	16.2
1938	875	92	24	991	88.3	11.7
1939	2,222	363	50	2,635	84.3	15.7
1940	1,360	75	24	1,459	93.2	6.8
1941	2,190	2	4	2,196	99.7	.3
1942	1,984	...	2	1,986	99.9	.1

Source: New Orleans Cotton Exchange, 73rd Annual Report, October 31, 1943.

It was shown in I&S Docket 4646—*Substitution of Cotton in the Southwest*[1], that there has been considerable increase in the percentage of cotton received at compresses in the Southwest by truck.

For the 1938 season the ratio of truck cotton to total receipts was as follows:—Arkansas, 59.1 per cent; Louisiana, 56.8 per cent; Missouri, 69.8 per cent; Oklahoma, 42.9 per cent; and Texas, 43.9 per cent. Receipts of cotton by truck at compresses on the Missouri Pacific, other than Memphis, Tenn., and West Memphis, Ark., showed an increase from 36 per cent for the 1935 season to 62 per cent for the 1938 season. Truck receipts of the Federal Compress and Warehouse Company at interior points in Arkansas, Missouri, and Louisiana, and at Memphis, Tenn., compresses increased from 23.5 per cent in the 1935 season to 47.2 per cent in the 1938 season.

Vice President Alonzo Bennett, Federal Compress and Warehouse Company, testified in I.C.C. Docket 28800[2] that compress receipts of cotton at all his company's 91 plants except Memphis, Tenn., and West Memphis, Ark., during the 1941 season amounted to 2,660,000 bales, of which 1,708,000 moved via truck and but 952,000 via rail. In other words, 64.2 per cent of all cotton received at these compresses during that season moved via truck. The reverse was true of receipts of flat cotton at

[1] 241 ICC 153, 1940.

[2] See page 49.

Importance of Cotton to the Railroads

Cotton is an important source of traffic and revenue to the railroads, particularly those in the Cotton Belt, comprising chiefly the Southern and Southwestern regions.

Cotton handled by railroads in the United States moves in ordinary box cars. Class A equipment is not required. Prevailing minimum weights can be loaded in cars of 40′ 7″ length.

In 1942 Class I railroads originated 227,400 cars of cotton. The total revenue from cotton in that year was $42,075,000, compared with $39,204,000 in 1928. Average cotton revenue in 1942 was $80.39 per car and $3.72 per ton, contrasted with $61.32 per car and $5.40 per ton in 1928.

In addition to $42,075,000 received by Class I railroads from cotton in 1942, they also received $5,900,000 from cotton linters, $1,450,000 from cottonseed and $19,900,000 from cotton fabrics in carloads, n.o.s. The last figure represents only a small part of the total revenue from this source, because most cotton fabrics move in less-than-carload lots. Still further, there are transported annually from points of manufacture to cotton gins and compresses, based upon a 12,000,000-bale cotton crop, about 54,000 tons of steel baling ties and 78,000 tons of bagging for covering the bales. Commercial fertilizer moved to and used on cotton farms during the 5 years 1938-42 averaged 1,490,000 tons per year.

Since the war began all tonnages per carload

have increased, due to the concerted efforts of shippers, carriers and the Office of Defense Transportation to load cars more heavily and conserve the car supply. In 1942 the average loading of cotton per car was 58 per cent of the average loading of all carload traffic and 80 per cent of the average loading of all products of agriculture. Yet, the average revenue per car of cotton was 3 cents greater than the average revenue for all carload traffic and but $4.54 per car less than the average revenue of all products of agriculture. Of $5,857,000,000 total carload revenue received by Class I carriers in the same year, cotton revenue amounted to nearly 1 per cent. It was about 6 per cent of the total of $709,000,000 received from all products of agriculture.

Table XXXI shows selected revenue and other traffic statistics for the movement of cotton via Class I railroads for the United States and the Southwestern[1] and Southern regions for the

[1] Several railroads, such as the AT&SF, CRI&P, and FW&DC, have mileage in the Southwest and handle substantial amounts of cotton, but their statistics are not included by the Interstate Commerce Commssion in the Southwestern Region.

TABLE XXXI

Cotton Handled by Class I Railroads—United States

	1928	1933	1938	1942	Increase or Decrease Compared 1928 Per cent
Tons Carried	7,256,628	5,894,988	4,947,730	11,323,566	56 I
Cars Carried	639,350	382,643	280,972	523,376	18 D
Average Tons Per Car Originated	11.4	15.4	17.6	21.6	89 I
Total Revenue	$39,204,343	$19,102,965	$17,477,458	$42,075,066	7 I
Average Revenue Per Car	$61.32	$49.92	$62.20	$80.39	31 I
Average Revenue Per Ton	$5.40	$3.24	$3.53	$3.72	31 D
Percentage Relationships					
Cotton Tons Carried To all products of agriculture carried	3.2	3.9	2.9	5.0	
Cotton Tons Carried To all carload traffic carried	0.3	0.5	0.4	0.4	
Cotton Revenue To all products of agriculture revenue	5.3	4.2	3.3	5.9	
Cotton Revenue To all carload revenue	0.9	0.8	0.6	0.7	
Cotton Handled by Class I Railroads—Southwestern Region					
Tons Carried	3,132,735	2,481,400	1,477,202	2,910,059	7 D
Cars Carried	272,153	164,711	80,926	143,316	47 D
Average Tons Per Car Originated	11.5	15.1	18.3	20.3	77 I
Total Revenue	$20,352,602	9,235,945	5,119,306	12,681,442	38 D
Average Revenue Per Car	$74.78	$56.07	$63.26	$88.49	18 I
Average Revenue Per Ton	$6.50	$3.72	$3.47	$4.36	33 D
Percentage Relationships					
Cotton Tons Carried to all products of agriculture carried	10.7	13.3	9.3	11.5	
Cotton Tons Carried to all carload traffic carried	1.9	2.7	2.3	1.4	
Cotton Revenue to all products of agriculture revenue	22.0	18.2	8.8	16.4	
Cotton Revenue to all carload revenue	5.1	4.5	2.1	2.4	
Cotton Handled by Class I Railroads—Southern Region					
Tons Carried	2,537,321	2,108,606	2,287,161	5,427,143	114 I
Cars Carried	238,366	137,108	136,353	249,313	5 I
Average Tons Per Car Originated	10.6	15.4	16.8	21.8	106 I
Total Revenue	$12,769,594	$6,061,610	$7,384,026	$16,355,957	28 I
Average Revenue Per Car	$53.57	$44.21	$54.15	$65.60	22 I
Average Revenue Per Ton	$5.03	$2.87	$3.23	$3.01	40 D
Percentage Relationships					
Cotton Tons Carried to all products of agriculture carried	8.7	10.6	11.4	16.4	
Cotton Tons Carried to all carload traffic carried	0.9	2.2	2.4	1.4	
Cotton Revenue to all products of agriculture revenue	11.6	8.4	9.0	15.4	
Cotton Revenue to all carload revenue	2.4	2.1	2.0	2.0	

Source: Interstate Commerce Commission, "Freight Commodity Statistics."

years 1928, 1933, 1938, and 1942.

Table XXXII shows carloads, tons and average loading per car of cotton originated in the United States, and in the Southwestern and Southern regions, since 1928.

TABLE XXXII

Cotton Tonnage Originated by Class I Railroads

	United States			Southwestern Region			Southern Region		
	Carloads	Tons	Tons Per Car	Carloads	Tons	Tons Per Car	Carloads	Tons	Tons Per Car
1928	309,056	3,423,519	11.1	160,695	1,899,665	11.8	116,364	1,117,672	9.6
1929	319,808	3,534,707	11.1	145,562	1,759,378	12.1	131,550	1,252,741	9.5
1930	243,204	2,713,927	11.1	107,049	1,292,700	12.1	104,007	1,024,977	9.9
1931	186,537	2,159,481	11.6	90,572	1,130,676	12.5	66,081	668,846	10.1
1932	205,204	2,530,484	12.3	109,230	1,433,131	13.1	61,348	685,809	11.2
1933	218,631	3,058,483	14.0	105,712	1,629,868	15.4	78,621	972,907	12.4
1934	148,238	2,202,165	14.8	67,330	1,137,643	16.9	64,464	804,844	12.5
1935	185,148	2,607,359	14.1	63,375	1,094,195	17.3	92,222	1,115,937	12.1
1936	235,502	3,347,724	14.2	81,617	1,432,856	17.6	112,495	1,356,458	12.1
1937	239,728	3,420,028	14.3	83,200	1,405,843	16.9	109,490	1,353,384	12.4
1938	172,128	2,588,697	15.0	60,377	1,051,325	17.4	74,098	978,364	13.2
1939	183,708	2,877,804	15.7	70,378	1,275,470	18.1	75,079	1,087,942	14.5
1940	174,175	2,939,020	16.9	72,963	1,354,198	18.6	66,999	1,025,061	15.3
1941	215,130	3,864,371	18.0	92,175	1,769,655	19.2	73,162	1,195,793	16.3
1942	227,360	4,174,197	18.4	90,953	1,779,941	19.6	88,532	1,446,070	16.3
1943	217,995	4,053,359	18.6	89,685	1,795,414	20.0	91,603	1,547,364	16.9

Source: Interstate Commerce Commission, Freight Commodity Statistics.

Of the 227,400 cars of cotton originated in 1942 on all Class I railroads, 91,000 originated in the Southwestern Region and 89,000 in the Southern Region. The two regions together thus originated nearly 80 per cent of all the cotton traffic of Class I carriers in that year, and they received about 70 per cent of the total cotton revenue.

Southwestern Region

From a revenue standpoint cotton traffic is the most important item of all agricultural traffic to the Southwestern Region railroads. In 10 of the 15 years 1928-42 their revenue from cotton was greater than that from any other single agricultural product. In the same period cotton revenue in most years closely approximated that from all animals and products, and in several years it was greater than the revenue from all animals and products.

In the 15-year period 1928-42 cotton tonnage in Southwestern Region averaged 10 per cent and its revenue 15 per cent of that of all agricultural products.

As previously stated[1], the railroads in Southwestern Region established carload rates on cotton in 1932. Cotton traffic in this region increased 500,000 tons in 1932 over 1931 and another 165,000 tons in 1933, although the crop was 16,600,000 bales in 1931 and only 12,700,000 bales in both 1932 and 1933. In 1939 the cotton crop was 5,000,000 bales less than in 1931, but railroads in Southwestern Region originated 144,000 tons more cotton than in 1931. The increase in cotton tonnage was accomplished in 1932 and 1933 even though all-agricultural-products tonnage had fallen materially below 1931. Doubtless this increase is attributable at least in part to the establishment of carload rates. In considering these comparisons of crop production and railroad tonnage, it should be kept in mind that most cotton is counted in railroad tonnage more than once between its first and its final movement by rail, and that fluctuations in the amount of such duplication may affect tonnage comparisons to some extent.

The establishment of carload rates on cotton also has tended to conserve car supply and has increased average revenue per car. For instance, the average loading of cotton per car in the Southwestern Region was 12.1 tons for the 4-year period 1928-31. Since then it has steadily increased, reaching 19.6 tons per car in 1942. Changes made in statistical methods of reporting shipments of less than 10,000 pounds by railroads handling large amounts of cotton may have affected this

[1] See page 48.

comparison to some extent. Although the rates have been materially reduced, the average revenue per car from cotton in this region increased from $74.78 in 1928 and $65.40 in 1931 to $88.49 in 1942.

As shown in Table XXXII, the Southwestern carriers originated nearly as much cotton in 1942 as they did in 1928, but used almost 70,000 fewer cars. As indicated in Table XXXI, cotton revenue in the Southwest decreased from $20,352,000 in 1928 to $12,681,000 in 1942, chiefly as the result of the sharp decrease in average revenue per ton shown in the same table.

Southern Region

While the Southwestern Region originates more cotton than the Southern Region, cotton revenue has been greater in the Southern Region than in the Southwestern Region since 1934. This is due largely to the fact that considerably more cotton terminates in the Southern than in the Southwestern region. In the 9-year period 1934-42 cotton revenue in the Southern Region has been greater than that of any other agricultural product, except in the years 1937, 1938, and 1939 when it was exceeded by the revenue from oranges and grapefruit. Total cotton revenue in the Southern Region in 1942 was $16,356,000 as compared with $12,770,000 in 1928.

In the 15-year period 1928-42, cotton tonnage and revenue averaged more than 11 per cent of all agricultural products, and revenue from cotton traffic in 1942 represented 15 per cent of all products of agriculture and 2 per cent of all carload traffic in this region.

The average loading per car of cotton originated in the Southern Region increased from 9.6 tons in 1928 to 16.3 tons in 1942.

Railway Tonnage Compared with Production

Table XXXIII shows, by years, from 1928 to 1941, the production and railway tonnage of cotton, with ratio and index figures, and cotton prices received by farmers.

TABLE XXXIII

Cotton

Production, Railway Tons Handled, Ratio of Tons Handled to Production, and Average Season Prices Received by Farmers

Year	Production Adjusted Tons (1)	Railroad Tons (1)	Ratio of Railroad Tons to Tons of Adjusted Production (Per cent)	Indices of Adjusted Production (1928=100)	Indices of Railroad Tons (1928=100)	Average Season Cotton Price Received by Farmers—Cts.
1928	3,648	3,483	95.5	100.0	100.0	18.0
1929	3,947	3,514	89.0	108.2	100.9	16.4
1930	3,612	2,655	73.5	99.0	76.2	9.5
1931	3,732	2,076	55.6	102.3	59.6	5.7
1932	3,576	2,522	70.5	98.0	72.4	6.5
1933	3,513	3,184	90.6	96.3	91.4	9.7
1934	2,688	2,272	84.5	73.7	65.2	12.4
1935	2,618	2,619	100.1	71.8	75.2	11.1
1936	2,998	3,330	111.1	82.2	95.6	12.3
1937	4,296	3,464	80.6	117.8	99.5	8.4
1938	3,562	2,600	73.0	97.6	74.7	8.6
1939	2,807	2,854	101.7	76.9	81.9	9.1
1940	2,715	2,856	105.2	74.4	82.0	9.9
1941	3,207	3,864	120.5	87.9	110.9	16.8

(1) 000 omitted.

Sources: Interstate Commerce Commission, Bureau of Transport Economics and Statistics, "Fluctuations in Railway Freight Traffic Compared with Production," Class I Steam Railways, Statement No. 3951, pages 36, 42, 48, 54, and 61; Statement No. 4130, page 37; Statement No. 4257, page 37. Production is based upon ginnings as reported by the Bureau of the Census, adjusted to take account of imports and changes in stocks on hand. Prices from Table XXV, page 42.

In 1928, railroad tons of cotton terminated closely approximated adjusted[1] tons of production, the former amounting to 95.5 per cent of the latter. There was practically no haulage of cotton by truck in 1928, and not much of the total was

[1] Adjusted for imports and changes in stocks on hand.

hauled by water. With the advent of severe truck competition in 1930 and 1931, railroad tonnage fell off substantially. The ratio of railroad tons to production was 73.5 per cent in 1930, and 55.6 per cent in 1931. Production was nearly the same in those years as in 1928. In other words, production was 84,000 tons greater in 1931 than in 1928, but railroad tonnage had decreased by 1,407,000 tons.

With reduced rates on cotton, railroad tons increased slightly in 1932 and materially in 1933. As previously shown, the reduced rates on cotton did not become effective until the latter part of 1932; thus the effects of these reductions were not fully realized until 1933. Railroad tons in 1933 amounted to 3,184,000 tons, only 300,000 tons less than in 1928, and a gain of 1,100,000 tons over 1931. In the same year the ratio increased to 90.6 per cent.

In 1934 production was curtailed and represented but 74 per cent of 1928 production, and the ratio fell to 84.5 per cent. This was probably attributable to reduced consumption due to the imposition of the processing tax under the Bankhead Act[1].

In 1935 the ratio was 100.1 per cent, while in 1936 it rose to 111.1 per cent. Rising cotton consumption in the United States took considerable cotton out of storage, accounting for the greater amount transported than produced. The reverse occured in 1937, when a record crop was produced. However, the ratio was 80.6 per cent and the total railroad tons were virtually as great as in 1928. With the general business recession in 1938, the ratio fell to 73.0 per cent. During the two years 1937-38 when the ratio of rail shipments to production was lower than it had been since 1932, a total of slightly more than 10,000,000 bales of cotton was put under government loan and therefore did not move in trade channels[2].

War activity commenced in 1939, and railroads tons rose, while production remained about the same as the average for the three years 1934-36. Hence, the ratio again exceeded 100 per cent. The war has greatly stimulated the movement of cotton, especially by rail. The ratio in 1941 was greater than at any time since 1928, having reached 120.5 per cent, and railroad tons of cotton were also greater in 1941 than in any year since 1928.

Chart F shows graphically the relationship between the ratio of railroad tons to production and the prices received by farmers for cotton, the figures being taken from Table XXXIII. The correspondence of trends between the two is interesting and may have implications of great significance. For example, the chart shows that almost without exception the proportion of total production which moves by rail is higher when market prices rise and vice-versa. Putting it another way, the more margin the market price affords for a profit in handling the cotton the less tendency there is to divert the cotton from the railroads.

In 1928, when the farm price of cotton[1] averaged 18 cents per pound, 96 per cent of the tonnage moved by rail. When the cotton price fell to 9.5 cents and 5.7 cents per pound in 1930 and 1931, respectively, the ratio of railroad tons to adjusted production fell to 74 per cent and 56 per cent, respectively. When the price increased slightly in 1932 the railroad ratio also increased and as the price increased further in 1933 to 9.7 cents per pound the ratio of railroad tons increased to 91 per cent. Again in 1937 and 1938 when the price of cotton fell off the ratio of railroad tons likewise declined. As the price of cotton to the farmer increased in 1939, 1940 and 1941 the ratio of railroad tons to tons of adjusted cotton production correspondingly increased.

The suggestion to be derived is that activities which help to promote higher market prices for cotton and greater profitability of cotton production and handling may be a substitute for rate reductions in holding cotton to the rails.

[1] For summary of this Act, see Appendix, page 95.

[2] Agricultural Statistics, 1942, U. S. D. A., page 730.

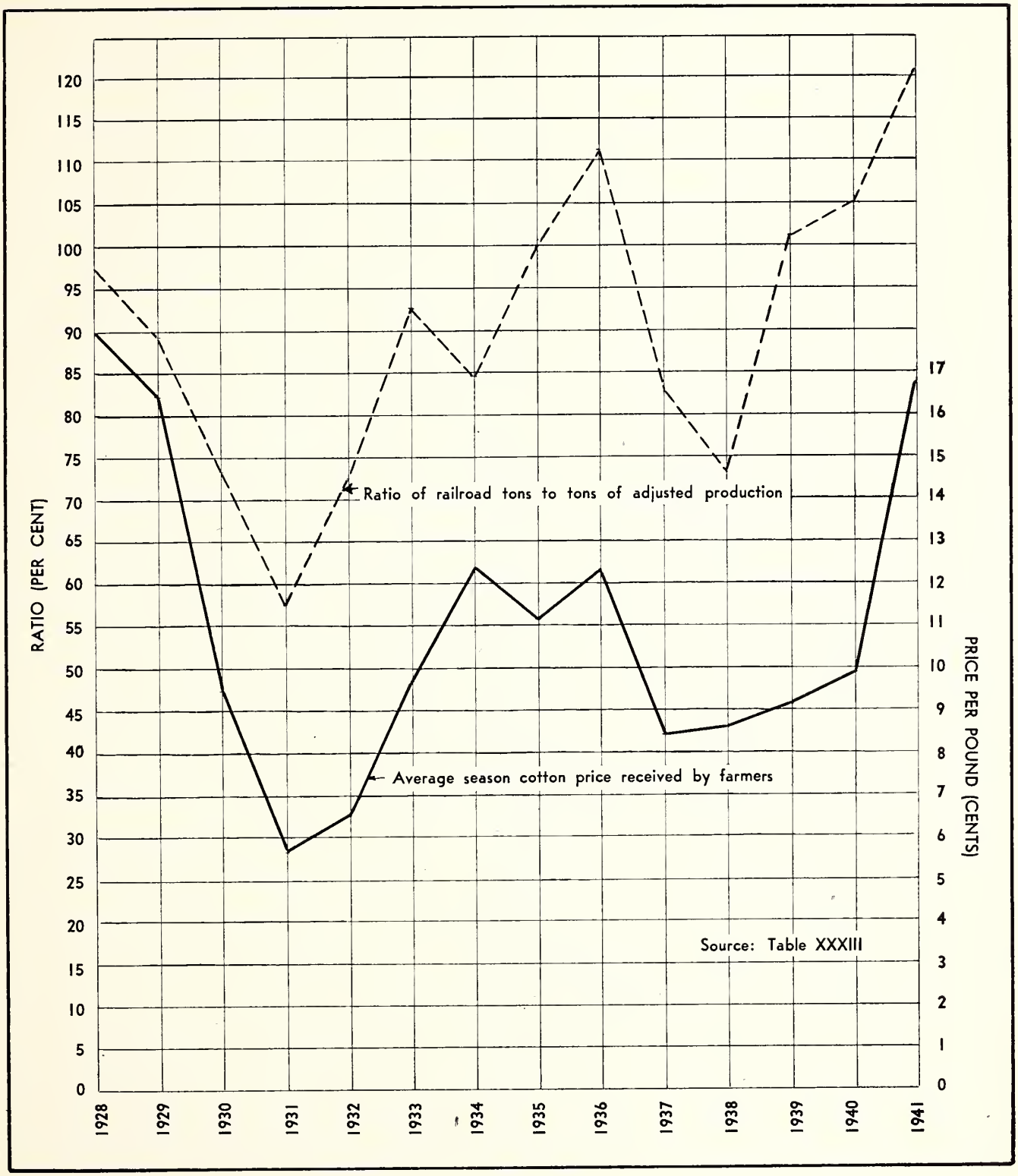
[1] The average season cotton price received by farmers.

Chart F

RATIO OF RAILROAD TONS TO ADJUSTED PRODUCTION OF COTTON

AND

AVERAGE SEASON PRICES RECEIVED BY FARMERS FOR COTTON



Illinois Central System

Cotton Compress and Storage Yard

Chapter V
Consumption

World Consumption

Table XXXIV shows world consumption of cotton from 1914 to 1941, divided between American cotton and foreign cotton. No distinction is here made as to where the cotton is consumed; that is, the figures under American-grown include both domestic and foreign consumption of American cotton.

has been greater than that of any prior consecutive 5 years.

American cotton for many years represented more than one-half of all cottons consumed in the world. Table XXXIV shows that approximately 60 per cent of all cotton consumed in world mills from 1914 through 1928 was American. The most significant change in the use of American cotton

TABLE XXXIV

World Mill Consumption of Cotton

(000 Omitted)

	Bales (1)			
Year	American Grown	Foreign Grown	World	American Per cent of World
1914	13,249	7,999	21,248	62
1915	13,039	8,939	21,978	59
1916	12,561	8,548	21,109	60
1917	10,871	7,645	18,516	59
1918	9,909	6,796	16,705	59
1919	11,898	7,402	19,300	62
1920	10,268	6,883	17,151	60
1921	12,209	7,569	19,778	62
1922	12,449	8,888	21,337	58
1923	10,917	9,110	20,027	55
1924	13,311	9,423	22,734	59
1925	14,010	10,158	24,168	58
1926	15,748	9,931	25,679	61
1927	15,576	9,866	25,442	61
1928	15,226	10,552	25,778	59
Total 1914–28	191,241	129,709	320,950	60
1929	13,021	11,854	24,875	52
1930	11,056	11,376	22,432	49
1931	12,528	10,361	22,889	55
1932	14,385	10,266	24,651	58
1933	13,780	11,822	25,602	54
1934	11,206	14,274	25,480	44
1935	12,503	15,026	27,529	45
1936	13,093	17,541	30,638	43
1937	10,795	16,778	27,573	39
1938	11,249	17,258	28,507	40
1939	12,876	15,610	28,486	45
1940	11,867	14,675	26,542	45
1941	12,210	13,362	25,572	48
Total 1929–41	160,569	180,203	340,776	47

(1) American cotton in running bales, counting round bales as half bales; Foreign cotton in 478-pound net bales.

Source: U. S. Dept. of Agriculture, Agricultural Statistics, 1936, Table 105; 1942, Table 146; U. S. Dept. of Commerce, Cotton Production and Distribution Bulletin 180, Table 13; New York Cotton Exchange Yearbook, 1942.

World cotton consumption has been on the increase since 1914 with but few exceptions. The peak world consumption of 30,638,000 bales was reached in 1936. There has been a slight downward trend since then, but the average consumption of 27,336,000 bales for the 5 years 1937-41

in world mills was from the 1928 to the 1929 season, when there was a reduction of 2,205,000 bales of American cotton and an increase of 1,302,000 bales of foreign cotton.

This tremendous shift from American to foreign cotton in world mills was caused largely by

loans on American cotton at above-market prices in 1929 by our Federal Farm Board[1]. This drove foreign consumers of American cotton to the use of foreign cotton. An interesting comparison is shown by consumption in 1936 and in 1928. Even though world consumption of all cotton was greater in 1936 by approximately 5,000,000 bales over 1928, there were 2,133,000 fewer bales of American cotton and 6,989,000 more bales of foreign cotton consumed in world mills in 1936 than in 1928. It is also significant that while American cotton constituted 60 per cent of world consumption during the 15 years 1914-28, it was but 47 per cent during the 13 years 1929-41.

average annual consumption of about 6,250,000 bales during the 15 years 1922-36, slightly more than 40 per cent was used for clothing, almost 40 per cent for industrial purposes and about 20 per cent for household purposes.

The latest available information indicates that there has been very little change from these averages. Table XXXV shows the uses of cotton in the United States for the years 1937 and 1939 and the percentage relationship of each use to total consumption.

Domestic Consumption

The consumption of American and foreign cotton by United States mills, by years, from 1914

TABLE XXXV

Cotton Consumption in the United States According to Use

Uses	Bales (1) (000 omitted) 1937	1939	Percentage of Total 1937	1939
All apparel	2,602	2,732	38.7	37.8
Household	1,500	1,808	22.3	25.1
Industrial	2,626	2,677	39.0	37.1
Auto Tires	634	633	9.4	8.8
Bags	477	459	7.1	6.4
Cordage	325	357	4.8	4.9
Mixtures (with other fibers)	116	131	1.7	1.8
Other	1,074	1,097	16.0	15.2
TOTAL	6,728	7,217	100.0	100.0

(1) Of 478 pounds net weight.

Source: "Cotton Counts Its Customers", Bureau of Business Research, University of Mississippi, and Division of Research, National Cotton Council of America.

The total world consumption of cotton was substantially the same in 1941 as in 1928, yet 3,016,000 fewer bales of American and 2,810,000 more bales of foreign cotton were consumed than in 1928.

The obvious conclusion is that foreign mills have been turning heavily to the use of foreign in place of American cotton. This trend may be difficult to arrest, but much of the postwar future of cotton depends upon what can be done along this line.

Chart G graphically shows the trends, by years, from 1914 to 1941, in world consumption of cotton; separated also between cotton of United States and of foreign growth.

Uses of Cotton

The best information available on the uses of cotton in the United States indicates that, of our

to 1942, is shown in Table XXXVI. In Table XXXVII the total United States consumption, by years from 1909 to 1943, is broken down by states.

Chart H shows graphically the trends of American cotton production, consumption, and exports, by years, from 1909 to 1942, inclusive.

Cotton consumption in the United States was slightly above 6,000,000 bales for the 5-year period 1915-19, but fell below 5,000,000 bales during the 1920 postwar readjustment period. After 1920 the trend in consumption was upward through 1928. Then it declined with the general depression, dropping to 4,866,000 bales in 1931, the smallest amount consumed by our mills since before World War I. There was a rise in consumption of 1,270,000 bales in 1932 over 1931.

The upward trend, however, was rather abruptly halted in 1933 by the effects of the processing tax of 4.2 cents per pound. (See discussion of this tax under next heading). The processing tax was

[1] For Summary of this Board's activities in cotton, see Appendix, page 94.

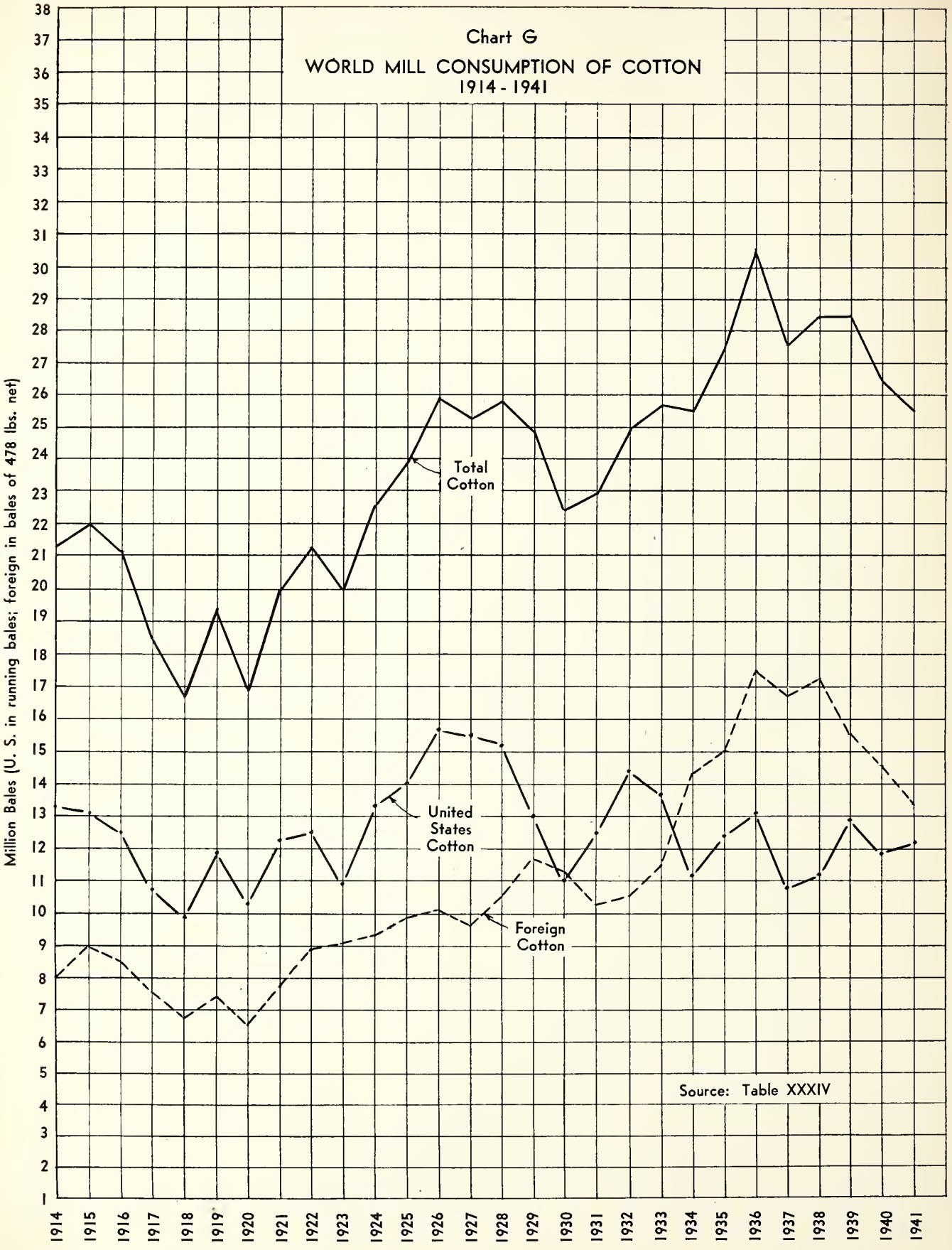


Chart G
WORLD MILL CONSUMPTION OF COTTON
1914 - 1941
Million Bales (U. S. in running bales; foreign in bales of 478 lbs. net)
Total Cotton
United States Cotton
Foreign Cotton
Source: Table XXXIV

also in effect throughout the 1934 and 1935 seasons and held down consumption in 1934. There was a general expansion in 1935 in the use of all textile fibers, and cotton consumption increased to well above 6,000,00 bales. With the repeal of the Bankhead Act[1] and the consequent removal of the processing tax, consumption attained a new high of almost 8,000,000 bales in 1936, but declined once more in 1937 and 1938 in keeping with general business activity. The beginning of the present war caused cotton consumption in the United States to start a tremendous upward spiral in 1939, reaching an all-time peak of 11,170,000 bales in 1941. High prices and labor shortage caused a reduction in consumption of more than 1,000,000 bales in 1943 under both 1941 and 1942.

In the 29-year period 1914-42, American-grown cotton was 97 per cent of all cotton consumed in the United States.

Cotton Processing Tax

The Agricultural Adjustment Act[1], 1933, assessed a processing tax on cotton, the purpose of which was to defray the cost of acreage reduction. This tax was applied upon the first domestic processing, other than ginning, of cotton at the rate of 4.2 cents per pound net weight, or $20.08 per bale of 478 pounds net weight. It affected only domestically consumed cotton and was abated or refunded on exported products. The tax was operative during 1933 under the Agricultural Adjustment Act and in 1934 and 1935 under the Bankhead Act.

TABLE XXXVI

American Mill Consumption of Cotton

Year	Bales (1) (000 omitted) American	Foreign	Total All Growths	American Per cent of all Growths
1914	5,375	222	5,597	96
1915	6,081	317	6,398	95
1916	6,470	319	6,789	95
1917	6,382	184	6,566	97
1918	5,590	176	5,766	97
1919	6,003	417	6,420	94
1920	4,677	216	4,893	96
1921	5,613	297	5,910	95
1922	6,322	344	6,666	95
1923	5,353	328	5,681	94
1924	5,917	276	6,193	96
1925	6,176	280	6,456	96
1926	6,880	310	7,190	96
1927	6,535	299	6,834	96
1928	6,778	313	7,091	96
1929	5,803	303	6,106	95
1930	5,084	179	5,263	97
1931	4,744	122	4,866	98
1932	6,004	133	6,137	98
1933	5,553	147	5,700	97
1934	5,241	120	5,361	98
1935	6,219	132	6,351	98
1936	7,767	182	7,950	98
1937	5,615	132	5,748	98
1938	6,736	122	6,858	98
1939	7,655	119	7,784	98
1940	9,576	146	9,722	99
1941	10,973	197	11,170	98
1942	10,930	170	11,100	98
Average	6,485	224	6,709	97

(1) American Cotton in running bales, counting round bales as half bales; Foreign cotton in 478 pound net bales.

Source: U. S. Department of Agriculture, Agricultural Statistics, 1936, Table 105 and 1942, Table 146; U. S. Dept. of Commerce, "Cotton Production and Distribution," Bulletin 180, Table 13; New York Cotton Exchange Yearbook, 1942.

[1] For summary of this Act, see Appendix, page 95.

[1] For summary of this Act, see Appendix, page 94.

TABLE XXXVII

Cotton Consumed by Mills, in the United States and by States

In Running Bales, Round Bales Counted as Half Bales, and Foreign Cotton in 500-Pound (Gross) Bales

Year (1) Beginning Aug. 1	United States	Alabama	California	Connecticut	Georgia	Illinois	Indiana	Maine	Massachusetts	Mississippi	New Hampshire
1909	4,621,742	236,188	14,803	136,870	496,951	17,451	21,612	154,841	1,228,813	29,978	265,501
1910	4,498,417	247,179	13,375	128,991	488,738	16,598	14,435	151,595	1,144,345	25,719	259,458
1911	5,129,346	267,189	18,780	142,745	564,426	27,831	21,795	166,550	1,264,017	31,151	295,095
1912	5,483,321	299,924	21,713	145,477	648,131	37,091	23,228	175,271	1,332,912	33,292	305,867
1913	5,577,408	287,335	(2)	134,839	632,332	10,938	16,941	181,262	1,347,778	30,855	300,881
1914	5,597,362	297,277	(2)	132,701	659,853	11,010	18,969	176,088	1,282,937	32,386	297,040
1915	6,397,613	346,233	(2)	144,582	797,789	13,007	18,509	193,534	1,462,880	35,542	294,666
1916	6,788,505	390,956	(2)	145,524	907,015	14,226	17,940	187,150	1,459,209	38,647	317,881
1917	6,566,489	374,792	(2)	138,192	854,078	12,718	17,138	185,418	1,459,291	36,640	310,478
1918	5,765,936	326,773	(2)	124,026	702,676	11,643	14,525	157,414	1,324,815	32,945	267,501
1919	6,419,734	367,468	(2)	135,939	800,901	13,006	14,472	194,431	1,454,325	36,425	294,289
1920	4,892,672	309,646	(2)	95,407	614,079	10,754	14,212	153,165	922,482	31,208	220,241
1921	5,909,820	377,548	(2)	115,631	781,870	12,418	15,936	162,142	1,140,459	40,463	175,983
1922	6,666,092	414,880	32,483	124,500	974,662	12,451	15,683	182,184	1,231,300	46,117	235,377
1923	5,680,554	392,705	32,278	96,909	864,328	13,165	15,711	148,836	869,695	34,751	191,816
1924	6,193,417	430,051	29,442	95,963	966,324	11,783	15,157	146,379	950,942	32,201	205,326
1925	6,455,852	494,283	31,876	92,624	1,012,980	11,326	17,419	136,318	945,790	33,402	224,981
1926	7,189,585	570,409	36,789	104,451	1,152,855	12,390	19,444	135,994	972,820	36,450	231,844
1927	6,834,063	552,020	33,189	105,923	1,168,431	12,412	17,624	122,070	789,975	41,627	206,936
1928	7,091,065	617,249	34,708	110,450	1,269,578	11,443	16,888	122,329	779,166	41,331	206,281
1929	6,105,840	583,439	30,458	90,341	1,089,661	10,138	15,193	113,965	627,483	36,204	169,482
1930	5,262,974	519,714	24,234	74,542	929,901	9,969	13,756	105,413	490,744	34,365	160,506
1931	4,866,016	532,250	20,867	52,474	874,383	9,922	11,881	87,445	340,372	35,357	122,190
1932	6,137,395	660,987	15,792	58,321	1,104,795	12,935	11,451	136,984	420,383	46,831	158,071
1933	5,700,253	583,756	20,911	58,915	1,059,665	10,738	15,490	133,669	515,673	41,206	168,660
1934	5,360,867	555,511	26,642	57,968	956,310	20,864	21,783	93,739	440,923	38,972	133,341
1935	6,351,160	689,378	26,338	59,520	1,225,115	12,729	19,282	119,984	449,850	43,092	105,083
1936	7,950,079	855,975	25,981	77,279	1,562,067	23,832	21,977	169,020	539,025	52,821	156,633
1937	5,747,978	587,613	10,192	46,434	1,080,193	18,166	13,421	119,964	329,408	38,265	118,164
1938	6,858,426	727,228	12,567	54,244	1,347,511	18,539	12,874	147,081	409,815	39,640	130,425
1939	7,783,774	867,579	15,590	67,104	1,565,066	22,769	14,180	150,245	470,971	45,058	111,172
1940	9,721,703	1,126,724	18,268	84,513	1,917,807	26,202	(2)	185,560	610,316	86,017	127,220
1941	11,170,106	1,298,675	24,781	93,985	2,225,454	29,852	(2)	215,445	691,524	57,583	159,175
1942	11,100,082	1,300,929	27,129	77,936	2,296,177	32,010	(2)	182,466	625,416	52,400	145,975
1943	9,943,370	1,176,268	(2)	61,523	2,044,974	(2)	(2)	153,473	512,833	(2)	124,950

Year (1) Beginning Aug. 1	New Jersey	New York	North Carolina	Pennsylvania	Rhode Island	South Carolina	Tennessee	Texas	Vermont	Virginia	All Other States
1909	52,853	199,787	658,498	66,885	219,920	627,708	70,229	39,052	10,441	70,689	179,883
1910	53,609	182,068	696,987	67,297	218,034	618,696	70,147	41,310	8,669	77,702	180,024
1911	62,433	205,191	824,476	69,887	229,365	731,318	73,441	51,820	10,588	86,177	227,300
1912	64,912	227,813	876,359	76,579	239,060	775,851	81,790	58,354	12,226	95,064	250,418
1913	57,380	211,458	906,177	48,727	241,443	794,678	79,590	47,162	12,994	85,566	149,072
1914	57,004	205,938	910,154	44,891	248,242	811,564	83,330	50,813	12,390	97,714	167,061
1915	62,664	238,748	1,067,288	49,203	279,233	914,532	98,707	59,181	13,823	112,396	195,088
1916	54,111	238,081	1,209,670	53,156	291,063	962,566	108,782	63,235	13,545	110,964	204,784
1917	49,518	240,310	1,183,275	46,906	296,913	888,218	104,842	63,978	12,228	97,457	194,099
1918	38,007	209,048	1,035,717	37,180	279,297	764,794	92,052	60,995	11,978	94,264	180,286
1919	37,075	233,729	1,149,241	41,739	305,240	843,924	108,373	64,333	12,902	112,747	199,175
1920	31,364	130,793	926,384	24,429	212,199	771,560	74,689	62,617	10,103	105,352	171,988
1921	38,265	197,930	1,198,163	29,747	215,996	918,725	107,731	76,606	12,470	116,530	175,107
1922	41,866	201,270	1,326,174	30,876	264,132	1,035,557	123,052	83,221	12,087	121,272	189,431
1923	39,088	144,017	1,199,859	30,892	217,971	947,964	120,053	79,627	9,550	105,775	157,842
1924	62,132	164,610	1,334,794	30,687	230,035	1,029,797	115,202	93,494	10,129	110,883	128,086
1925	47,826	163,905	1,394,124	30,054	220,332	1,078,146	130,619	118,071	7,952	121,243	142,581
1926	35,772	162,477	1,639,726	26,508	219,227	1,245,482	150,914	139,273	10,436	129,783	156,541
1927	35,041	140,326	1,583,829	23,977	203,621	1,228,642	158,387	130,042	9,906	120,024	150,061
1928	32,176	127,602	1,631,443	18,276	218,980	1,301,496	176,092	121,051	10,245	106,424	137,857
1929	30,852	101,390	1,420,735	17,078	132,749	1,124,247	169,407	100,602	8,710	120,449	113,257
1930	26,375	83,598	1,252,144	15,060	97,836	1,015,593	150,443	68,755	7,700	95,927	86,399
1931	28,237	69,685	1,183,300	11,322	69,321	1,017,531	140,120	60,670	5,660	115,479	77,550
1932	20,020	83,252	1,471,672	12,687	101,024	1,323,986	153,206	85,934	9,261	144,547	105,256
1933	24,519	73,685	1,334,653	13,702	100,969	1,101,088	122,303	87,070	7,512	137,403	88,666
1934	21,856	69,972	1,249,685	11,879	83,600	1,055,838	129,786	67,564	8,620	144,738	171,276
1935	16,873	86,310	1,645,028	16,122	88,721	1,255,009	154,297	80,564	8,415	154,676	94,774
1936	22,336	116,064	2,021,101	21,160	120,417	1,510,963	190,779	130,959	10,509	174,048	147,133
1937	17,766	65,640	1,478,230	10,591	86,523	1,195,640	152,347	118,933	7,070	146,415	107,003
1938	19,373	84,088	1,789,458	13,048	108,309	1,372,009	172,777	125,064	9,525	139,323	125,528
1939	21,741	95,123	2,039,759	17,580	111,393	1,535,886	190,652	145,422	7,428	148,936	140,132
1940	26,526	110,118	2,413,319	17,665	135,751	1,817,741	251,693	245,188	(2)	195,938	325,137
1941	32,917	133,657	2,832,380	24,621	148,440	2,150,051	273,475	254,157	(2)	252,344	271,590
1942	32,705	119,201	2,853,915	21,971	120,685	2,190,088	263,212	267,452	(2)	260,081	230,334
1943	(2)	102,778	2,659,997	(2)	95,048	2,039,106	221,955	(2)	(2)	231,071	519,384

(1) Statistics relating to years prior to 1914 are for 12 months beginning September 1. Cotton consumption statistics are usually shown for year ending July 31. However, in order that consumption and production statistics correlate, all consumption figures have been moved back a year, thus the figures are for year beginning August 1.

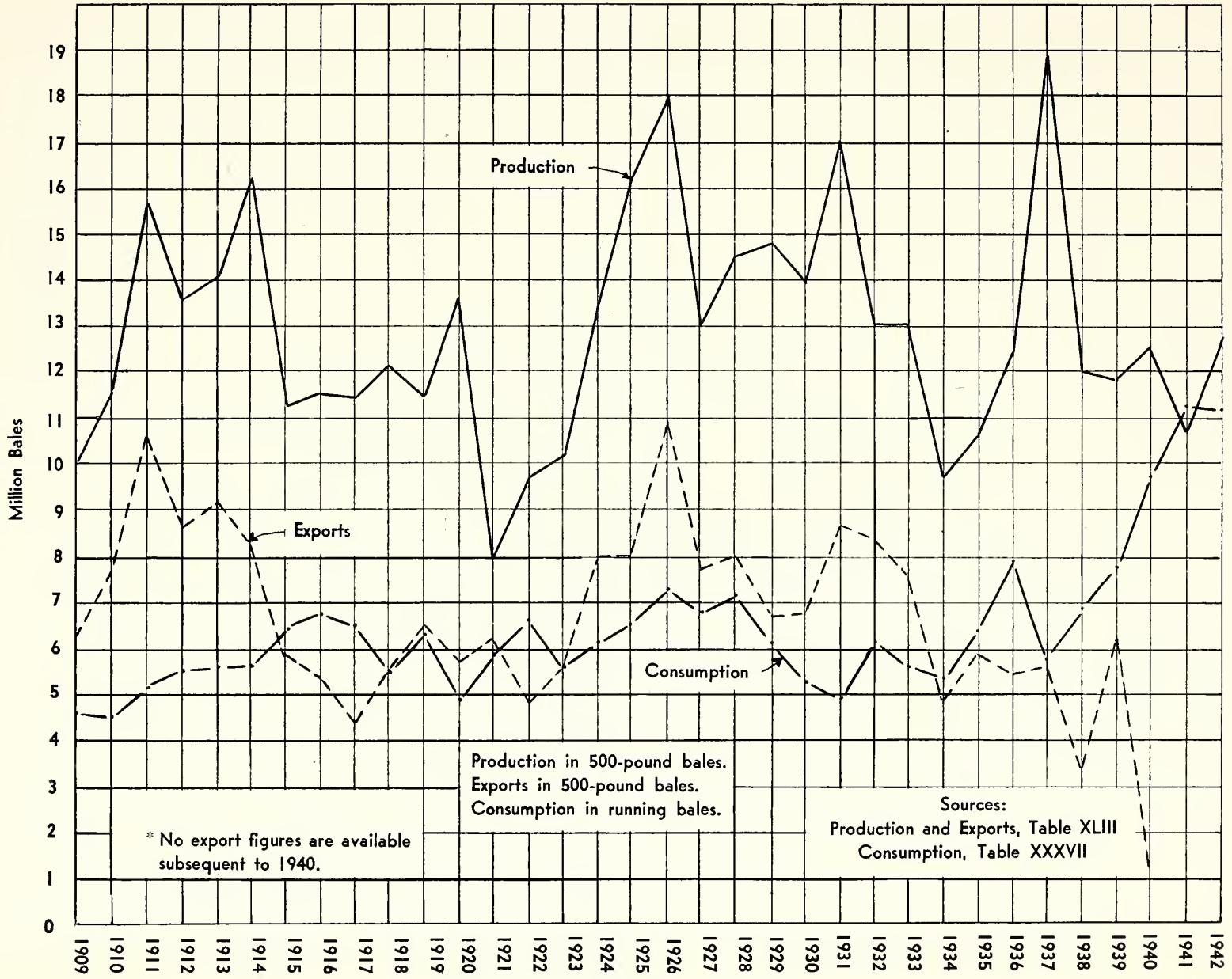
(2) Included in "All Other States".

Source: U. S. Department of Commerce, Bureau of Census, Cotton Production and Distribution Bulletins 180, 175, 173, 169, 164, 156, 147, 137, and 115.

Chart H

COTTON: UNITED STATES PRODUCTION, CONSUMPTION, AND EXPORTS*

1909 - 1942



Foreign Cotton

As indicated in Table XXXVI, consumption of foreign cotton in the United States for the 29-year period 1914-42, has averaged but 3 per cent of our total consumption. The largest amount of foreign cotton used in any of these years was in 1919, when we consumed 417,000 bales. Subsequently the use of foreign cottons in the United States gradually decreased until in 1934 we consumed but 120,000 bales of foreign cotton, or 2 per cent of our total consumption. Since 1934 consumption of foreign cotton in the United Sttaes has increased, and 197;000 bales were consumed in 1941, still only 2 per cent of the total.

In the 1910's and early 1920's Eastern and New England states used practically all of the foreign cotton consumed in the United States. Since 1923, however, mills in the cotton-growing states, especially North Carolina and Georgia, have found more uses for this type of cotton. Of the total foreign cotton consumed in the United States in 1938, the cotton-growing states consumed 47 per cent while the Eastern and New England states consumed 50 per cent. The remaining 3 per cent was consumed in other parts of the country.

Consumption In New England and in Cotton States

Although all our cotton is grown in southern areas of the country, for a long time most of it was consumed by mills in the North, particularly in the New England states. By the turn of the century, however, mills in the cotton-growing states were consuming almost as much cotton as the New England mills. The cotton-producing states became the major consumers by 1905, and have steadily increased consumption until today their mills use 88 per cent of the cotton consumed in the United States. New England mills, on the other hand, consume but 10 per cent. Various other territories account for approximately 2 per cent.

Table XXXVIII shows, by years, from 1909 to 1943, the total mill consumption of cotton in the United States according to the territory where used. Cotton consumed by New England mills has declined from 43 per cent of our total in 1909 to 10 per cent in 1943. A similar downward trend is apparent for "all other" states. As other parts of the country have lost cotton-mill business, the cotton-growing states have gained. These states have increased their consumption of cotton from 48 per cent of the total in 1909 to 88 per cent in 1943.

Consumption By States

Cotton consumption in the following individual states is of sufficient importance to be reported by the United States Bureau of the Census.

Cotton-Growing		New England	Other
Alabama	South Carolina	Connecticut	Illinois
California	Tennessee	Maine	Indiana
Georgia	Texas	Massachusetts	New Jersey
Mississippi	Virginia	New Hampshire	New York
North Carolina		Rhode Island	Pennsylvania
		Vermont	

Table XXXVII, page 62, shows, by years, from 1909 to 1943, cotton consumed by mills in these states.

In each of the cotton-growing states, except California, Mississippi and Tennessee, consumption reached its peak in 1942 after an almost continuous rise since the early 1920's. Consumption in California has decreased, while the peak occurred in 1940 and 1941, respectively, in Mississippi and Tennessee.

Table XXXIX is extracted from Table XXXVII. It shows, by decades, from 1910 to 1940, the mill consumption in the cotton-growing states, with each state's percentage of total United States consumption.

Among these states, North Carolina has shown (see Table XXVII) the most marked increase in consumption—from 659,000 bales in 1909 to 2,854,000 bales in 1942. Ranking next in volume of 1942 consumption to North Carolina are Georgia, South Carolina, and Alabama, respectively. These four states combined accounted for 8,641,-100 bales, or 77 per cent of the 1942 consumption.

Texas is the only Southwestern state for which consumption statistics are available. Although Texas consumption does not yet approach that of any of the four leaders, it is steadily gaining, having been 263,000 bales in 1942, as contrasted with 41,000 bales in 1910. The relative increase in Texas has been greater than that of Mississippi, Tennessee or Virginia.

Of the western states, California alone is noteworthy. Its cotton consumption reached an all-time high of nearly 37,000 bales in 1926, and averaged 28,600 for the 10-year period 1922-31. With the beginning of the 1929 depression, California consumption decreased sharply and had dropped to 10,200 bales by 1937. Since that time it has

TABLE XXXVIII

Mill Consumption of Cotton [1] in the United States, by Territories

Bales [2] (000 Omitted)

Year Beginning Aug. 1	United States	Cotton-Growing States		New England States		All Other States	
		Bales	Per cent	Bales	Per cent	Bales	Per cent
1909	4,622	2,234	48	1,995	43	393	9
1910	4,498	2,249	50	1,882	42	367	8
1911	5,129	2,636	51	2,076	41	417	8
1912	5,483	2,862	52	2,178	40	443	8
1913	5,577	2,925	52	2,219	40	433	8
1914	5,597	3,027	54	2,149	38	421	8
1915	6,398	3,528	55	2,389	37	481	8
1916	6,789	3,888	57	2,414	36	486	7
1917	6,566	3,697	56	2,403	37	467	7
1918	5,766	3,199	56	2,165	37	402	7
1919	6,420	3,583	56	2,397	37	440	7
1920	4,895	2,997	61	1,614	33	282	6
1921	5,910	3,730	63	1,823	31	357	6
1922	6,666	4,248	64	2,050	31	369	5
1923	5,681	3,858	68	1,535	27	287	5
1924	6,193	4,220	68	1,639	27	335	5
1925	6,456	4,500	70	1,628	25	328	5
1926	7,190	5,194	72	1,675	23	321	5
1927	6,834	5,114	75	1,438	21	282	4
1928	7,091	5,392	76	1,447	20	251	4
1929	6,106	4,749	78	1,145	19	214	3
1930	5,263	4,148	79	937	18	179	3
1931	4,866	4,033	83	677	14	155	3
1932	6,137	5,087	83	884	14	167	3
1933	5,700	4,550	80	985	17	165	3
1934	5,361	4,306	80	818	15	237	5
1935	6,351	5,336	84	832	13	184	3
1936	7,950	6,626	83	1,073	14	251	3
1937	5,748	4,881	85	708	12	160	3
1938	6,858	5,810	85	859	12	189	3
1939	7,784	6,647	85	918	12	219	3
1940	9,722	8,289	85	1,147	12	285	3
1941	11,170	9,526	85	1,313	12	331	3
1942	11,100	9,640	87	1,156	10	304	3
1943	9,943	8,739	88	950	10	254	2

(1) Includes both American and foreign cotton consumed.
(2) U. S. in running bales, counting round bales as half bales; foreign in 500-pound bales.

Source: Cotton Production and Distribution Bulletins, U. S. Dept. of Commerce, Bulletin 180, Table 16.

TABLE XXXIX

Cotton Consumed by Mills in Cotton-Growing States [1]

Bales (000 Omitted)

	Consumption				Percentage of Total			
	1910	1920	1930	1940	1910	1920	1930	1940
United States	4,498	4,893	5,263	9,722	..	..	..	..
Alabama	247	310	520	1,127	5	6	10	12
Georgia	489	614	930	1,918	11	13	18	20
Mississippi	26	31	34	86	1	1	1	1
North Carolina	697	926	1,252	2,413	15	19	24	25
South Carolina	619	772	1,016	1,818	14	16	19	19
Tennessee	70	75	150	252	2	1	3	2
Virginia	78	105	96	196	2	2	2	2
Texas	41	63	69	245	1	1	1	2
California	13	(2)	24	18	(3)	..	(3)	(3)
Total (4)	2,280	2,896	4,091	8,073	51	59	78	83

(1) States for which statistics are reported.
(2) Not reported.
(3) Less than .5 per cent.
(4) Total for the nine states listed.

Source: Table XXXVII.

shown a gain but has not equaled pre-depression levels. Annual consumption in California for the period 1938-42 has averaged but 19,670 bales.

Per-Capita Consumption

Table XL shows, by years, from 1911 to 1942, the total and per-capita consumption in the United States of cotton, wool, silk and rayon. Chart I shows graphically the comparative per-capita consumption of these fibers for selected years of this period.

1934 to 4.86 pounds in 1941, and for silk from .19 pound in 1941 to .80 pound in 1929. Rayon has shown the most pronounced per-capita increase, from .02 pound in 1911 to 4.62 pounds in 1942.

As reflected in Chart I, the per-capita consumption of cotton is much greater than that of wool, silk, or rayon. In fact, 1940 per-capita consumption of cotton was roughly 10 times as great as either wool or rayon and 5 times as great as wool, silk and rayon combined.

Per-capita consumption of cotton and wool in

TABLE XL

Cotton and Other Fibers: Estimated Total and Per Capita-Consumption, United States

Year	——Total—— Million Pounds				——Per Capita—— Pounds			
	Cotton (1)	Wool (2)	Silk (3)	Rayon (4)	Cotton (1)	Wool (2)	Silk (3)	Rayon (4)
1911	2,478	248	26	2	26.2	2.64	.28	.02
1912	2,665	278	30	3	27.7	2.92	.31	.03
1913	2,700	229	34	4	27.5	2.35	.35	.04
1914	2,716	272	31	5	27.2	2.74	.31	.05
1915	3,094	337	37	7	30.6	3.35	.37	.06
1916	3,272	362	40	7	31.8	3.55	.40	.06
1917	3,155	345	43	7	30.3	3.33	.42	.07
1918	2,789	399	48	6	26.6	3.82	.46	.06
1919	3,097	329	55	9	29.3	3.13	.52	.09
1920	2,370	314	39	9	22.0	2.95	.36	.08
1921	2,819	343	52	20	25.7	3.16	.48	.18
1922	3,200	407	58	25	28.8	3.69	.52	.22
1923	2,710	422	62	33	23.9	3.77	.55	.29
1924	2,960	342	60	42	25.7	3.00	.52	.37
1925	3,085	350	76	58	26.4	3.02	.66	.50
1926	3,482	343	77	61	29.4	2.92	.65	.52
1927	3,313	354	85	100	27.6	2.97	.71	.84
1928	3,434	333	87	101	28.3	2.76	.72	.83
1929	2,976	368	97	133	24.3	3.02	.80	1.10
1930	2,550	263	81	119	20.6	2.14	.66	.97
1931	2,393	311	88	159	19.2	2.51	.71	1.28
1932	3,004	230	75	155	24.0	1.84	.60	1.24
1933	2,810	317	70	217	22.3	2.53	.56	1.73
1934	2,609	230	60	197	20.6	1.82	.48	1.56
1935	3,102	418	72	259	24.3	3.28	.57	2.03
1936	3,884	406	68	323	30.2	3.17	.53	2.52
1937	2,855	381	64	308	22.1	2.96	.50	2.39
1938	3,372	285	57	327	25.9	2.19	.44	2.52
1939	3,833	397	55	459	29.2	3.03	.42	3.50
1940	4,751	408	48	488	35.8	3.09	.36	3.70
1941	5,470	648	26	586	40.8	4.86	.19	4.40
1942 (5)	5,318	604	..	622	39.2	4.48	..	4.62

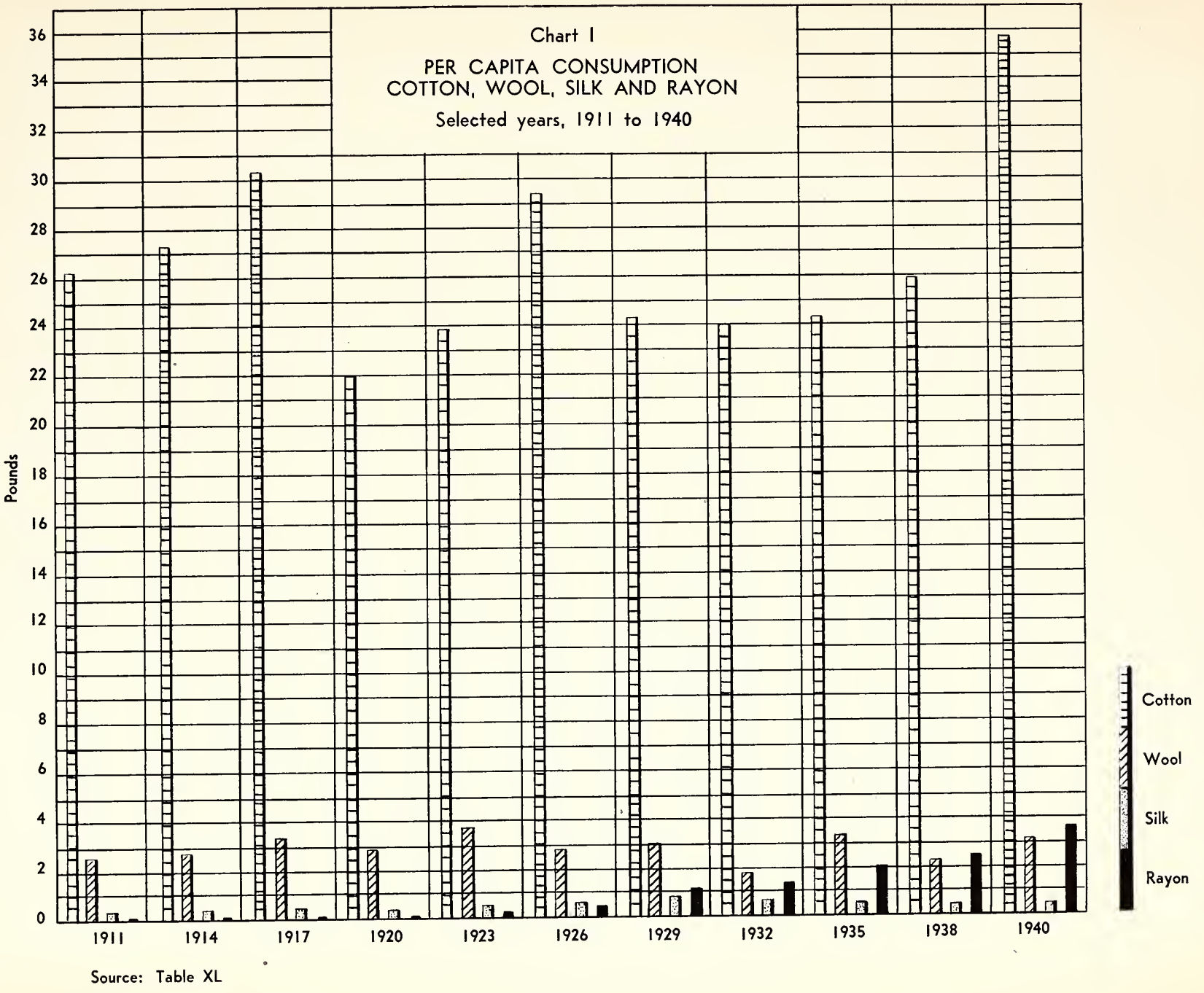
(1) Year beginning Sept. 1, 1911–13; beginning August 1, 1914–40.
(2) Apparel and carpet wool, reduced to scoured basis; production plus net imports, 1911–17; consumption, 1918–40 on calendar-year basis.
(3) Net imports, 1911–13; imports for consumption, 1934–40, on calendar-year basis.
(4) From Rayon Organon. Includes filament yarn and staple fiber. Calendar-year basis. Bureau of Agricultural Economics calendar-year figures divided by July 1 population estimates to get per-capita figures, except for cotton, crop-year figures divided by January 1 population estimates to get per-capita figures.
(5) Preliminary.

Source: U. S. Department of Agriculture, "Agricultural Statistics," 1942, Table 166, and 1943, Table 95.

As shown in Table XL, the per-capita consumption of cotton has ranged during the 32-year period 1911-42 from a low of 19.2 pounds in 1931 to a high of 40.8 pounds in 1941. The range for wool consumption has been from 1.82 pounds in

the 5-year period 1936-40 was substantially the same as in the like period 1911-15, while silk showed a slight increase. Consumption of cotton and wool has increased since the 1929 depression.

Per-capita consumption increases in 1939, 1940,



Source: Table XL

1941 and 1942 in cotton, wool, and rayon and decreases in silk are a direct result of the war. Nevertheless, in the years just preceding, per-capita consumption of cotton was approximately the same as in the middle 20's. The average for the 4 years 1935-38 was 25.6 pounds, compared with 26.3 pounds for the 4 years 1923-26. Thus, per-capita consumption of cotton (and also wool) was maintained in the face of increased rayon consumption. This occurred without any apparent organized joint effort on the part of cotton growers and manufacturers prior to 1939 to develop new uses for their products. The manufacturers did, however, with limited funds, do some research and promotional work through the Cotton-Textile Institute, Inc.

It was not until war began in Europe that the joint interests of the growers and manufacturers were allied through the Cotton-Textile Institute and the National Cotton Council of America, with sufficient funds to organize and set into motion the research and promotional machinery necessary for further development of cotton. This appears to be the greatest effort ever made by the American cotton industry to hold its own in the competition among fibers.

Since the war began many new uses for cotton have been developed, a great number of which are still secret. There is no doubt that through modern research and thorough-going market analysis ways will be found to increase per-capita consumption of cotton, at home and abroad.

Cotton Production and Consumption in the United States

Cotton consumption in the United States normally is about 45 per cent of the crop. Abnormal situations arise occasionally, as in 1921, when we consumed 74 per cent of a crop that was exceptionally small due to boll-weevil damage. By contrast, in 1937, we consumed only 32 per cent of the crop, as a result of unusually large production coupled with general business recession.

Since the beginning of the present war in 1939, our consumption has been greater than ever before. For example, consumption in 1939, 1940, 1941 and 1942 was 68 per cent, 79 per cent, 106 per cent, and 89 per cent, respectively, of production. Tables IV, XV, XXXVI and XXXVII show production and consumption of cotton in the United States.

Cotton-Growing States

Except in North Carolina, South Carolina, and Virginia, consumption in the cotton-growing states prior to 1921 was generally less than 50 per cent of their production. Since then consumption has steadily increased in most of these states, while production has been about the same or less. This has resulted in recent years in a cotton deficiency in certain of the states which consume as well as produce cotton, notably in Alabama, Georgia, North Carolina, and South Carolina. A comparison between production and consumption in the states which both produce and consume cotton appears in Table XLI. The ratio of consumption to production increased from 1910 to 1940 in Alabama by 125 percentage points, in Georgia by 165 percentage points, in North Carolina by 252 percentage points, and in South Carolina by 142 percentage points. The increase in these states was even greater in 1941. Consumption in Alabama exceeded production in 1941 by as much as 67 per cent.

Consumption in Georgia has been materially greater than production in every year since 1935, except 1937, the largest production year for the country. The all-time record for cotton consumption in Georgia was in 1942, when 2,296,000 bales were consumed against a production of 853,000 bales.

Since 1915, the consumption in North Carolina has been materially greater than the production. The only exception was 1920, when 98 per cent of production was consumed. The present war has caused consumption figures to show a sharp contrast with production figures; 2,854,000 bales were consumed in 1942 and 735,000 bales produced.

The situation in South Carolina is substantially the same as in North Carolina, consumption having consistently exceeded production since 1921. Consumption exceeded production in both North and South Carolina in 1941 by more than 400 per cent.

Since consumption greatly exceeds production in Alabama, Georgia, North Carolina, and South Carolina, there is necessarily a considerable transportation haul of cotton from the low-consuming

states of Louisiana and Mississippi and those west of the Mississippi River. The consumption in Texas normally has been less than 5 per cent of production, and at least 90 per cent of the Texas cotton has moved through Texas Gulf ports for export or for coastwise movement to New England. However, with the export market practically closed as a result of the war, Texas cotton has been and is now moving into the Southeast and Carolinas for consumption. During 1939, 1940, 1941, and 1942 production has exceeded consumption in Texas by more than 2,000,000 bales, and most of this has moved via rail into the Southeast and Carolinas.

Production and Consumption in Georgia

Georgia is the only state for which both production and consumption data by grade and staple are made available by the United States Department of Agriculture.

In 1938 the mills of Georgia consumed 496,800 bales more than were produced. There was a production surplus of only one staple length—about 1,700 bales of cotton shorter than 7/8". The major production deficiency was in cotton 1-1/16" and longer—251,200 bales more were consumed than produced. The Mississippi Delta was the primary source of supply of this cotton. A deficiency of about 120,000 bales of 1" cotton also existed.

There has been no material improvement in the grade of Georgia's cotton in the last 15 years. Records show that of the 1940 crop about 91,000 bales, or approximately 9 per cent, were improperly ginned, reducing the quality by one or more grades. Usually there is little mill demand for low-grade, long-staple cotton.

TABLE XLI

Cotton Produced and Consumed, United States and Selected States—1910, 1920, 1930 and 1940

Bales (000 Omitted)

	1910			1920			1930			1940		
	Produced	Consumed	Per cent (1)	Produced	Consumed	Per cent	Produced	Consumed	Per cent	Produced	Consumed	Per cent
United States	11,568	4,498	39	13,271	4,893	37	13,756	5,263	38	12,298	9,722	79
Alabama	1,192	247	21	670	310	46	1,445	520	36	773	1,127	146
Georgia	1,812	489	27	1,447	614	43	1,597	930	58	1,001	1,918	192
Mississippi	1,212	26	2	900	51	4	1,458	34	2	1,238	86	7
North Carolina	753	697	93	949	926	98	801	1,252	156	744	2,413	325
South Carolina	1,211	619	51	1,652	776	47	1,015	1,016	100	944	1,818	193
Tennessee	321	70	22	315	75	24	371	150	41	504	252	50
Virginia	16	78	483	22	105	481	43	96	225	25	196	788
Texas	2,950	41	1	4,148	62	2	3,886	69	2	3,094	245	8
California	6	13	223	78	(2)	—	256	24	10	532	18	3

(1) Per cent consumption is of production.
(2) Consumption figures not reported separately.

Source: U. S. Department of Commerce, Bureau of Census, "Cotton Production and Distribution."

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Chapter VI
Exports and Imports

World Cotton Exports

The United States, India, Egypt, Turkey, Belgian Congo, Iran, Kenya, Uganda, Anglo-Egyptian Sudan, Russia, China, Argentina, Brazil, Peru, and Mexico in the aggregate normally export 95 per cent or more of all world cotton exports.

Table XLII shows total cotton exports from these 15 leading exporting countries combined, and from the United States, and the percentage of the United States to the total.

heavily. Of these Brazil is by far the largest cotton-exporting country, with Peru next. Of the total world cotton exports in 1937, Brazil and Peru exported 9 per cent and 3 per cent, respectively.

Although our exports have decreased since 1933, we still averaged 44 per cent of the total from 1934 through 1937. Even now the United States is by far the world's largest cotton-exporting country. Based on the 1934-37 average, we exported twice as much as India, the next country.

TABLE XLII

World (1) Cotton Exports Compared with United States Cotton Exports

Bales (2) (000 Omitted)

Year	World (1)	United States	United States Per cent of World
1909	9,915	6,206	63
1910	11,801	7,788	66
1911	14,275	10,719	75
1912	12,552	8,746	70
1913	14,324	9,142	64
1914	11,782	8,323	71
1915	9,531	5,896	62
1916	8,458	5,300	63
1917	7,299	4,288	59
1918	8,528	5,592	66
1919	10,965	6,545	60
1920	8,760	5,745	66
1921	10,743	6,184	58
1922	10,088	4,823	49
1923	10,807	5,656	53
1924	13,637	8,005	59
1925	13,753	8,051	59
1926	16,119	10,927	68
1927	13,025	7,752	61
1928	14,172	8,044	57
1929	12,626	6,690	53
1930	12,440	6,760	54
1931	13,219	8,708	66
1932	13,061	8,419	65
1933	13,357	7,534	56
1934	10,950	4,799	44
1935	12,909	5,973	46
1936	13,705	5,440	40
1937	11,894	5,598	47

(1) Total of the United States, India, Egypt, Turkey, Belgian Congo, Iran, Kenya, Uganda, Anglo-Egyptian Sudan, Russia, China, Argentina, Brazil, Peru, and Mexico.

(2) American cotton in running bales, foreign in bales of 478 pounds.

Source: U. S. Department of Agriculture, "Statistics on Cotton" December, 1939; "World Cotton Situation."

From 1909 through 1933, the United States consistently exported more than 50 per cent of the total. In several years we exported 70 per cent or more of the total. India and Egypt have ranked next to the United States in cotton exports for many years. A marked increase in cotton exports has been shown by South American countries, especially since 1934, when our exports declined Due to the present war, 1937 is the last year for which complete figures are available.

American Cotton Exports

Table XLIII shows production and exports of American cotton for each year from 1909 to 1940 and the percentage of exports to production. From 1909 through 1935, the United States, with few

exceptions, exported more than half of its cotton crop. The exceptions were during World War I and in 1920 and 1930. Our cotton exports averaged 8,944,000 bales for the 5-year period 1910-14, but fell below 6,000,000 in 1914 and below 5,000,000 in 1917.

cotton production abroad, and the depression. Loans on cotton by the Federal government in an effort to support prices, beginning in 1929, also had some effect along this line. United States cotton exports gained in 1931 because of a short crop in India.

TABLE XLIII

Cotton Production and Exports, United States

Bales (1) (000 Omitted)

Year Beginning Aug. 1	Production	Exports	Per cent
1909	10,073	6,206	62
1910	11,568	7,788	67
1911	15,533	10,719	69
1912	13,489	8,746	65
1913	13,983	9,142	65
1914	15,906	8,323	52
1915	11,068	5,896	53
1916	11,364	5,300	47
1917	11,248	4,288	38
1918	11,906	5,592	47
1919	11,326	6,545	58
1920	13,271	5,745	43
1921	7,978	6,184	78
1922	9,729	4,823	50
1923	10,171	5,656	56
1924	13,639	8,005	59
1925	16,123	8,051	50
1926	17,755	10,927	62
1927	12,783	7,752	61
1928	14,297	8,044	56
1929	14,548	6,690	46
1930	13,756	6,760	49
1931	16,629	8,708	52
1932	12,710	8,419	66
1933	12,664	7,534	60
1934	9,472	4,799	59
1935	10,420	5,973	57
1936	12,141	5,440	45
1937	18,252	5,598	31
1938	11,623	3,327	29
1939	11,481	6,192	54
1940	12,298	1,112	9

(1) Running bales, counting round bales as half bales.

Source: U. S. Dept. of Commerce, Cotton Production and Distribution, Bulletin 179, Table 25, p. 45.

In 1922, due to deficient crops in 1921 and 1922, exports again fell below 5,000,000 bales, although they had reached 6,500,000 in 1919.

An all-time high was established in 1926, when we exported a total of 10,927,000 bales. While our cotton production was approximately the same in 1929 and 1930 as in 1928, exports were more than 1,000,000 bales under 1928 and were less than 50 per cent of production. This decrease was the result of heavy buying of the 1926 American crop by foreign cotton-consuming countries, increased

In 1934 cotton exports declined almost 3,000,000 bales. This was caused primarily by pegging of cotton prices in this country and increased production in other countries during the preceding 5 years, resulting in a world supply of more than 43,000,000 bales. Our exports since then have never been as great in any single year as they were in the lowest year during the 1924-33 period.

The present war is responsible for the record low of 1,112,000 bales of American cotton exported in 1940.

Exports, By Countries and Customs Districts

Table XLIV shows a breakdown, by country of destination, of American cotton exports, by 5-year intervals, from 1924 to 1939. For many years cotton exported from the United States has gone principally to the United Kingdom, Germany, Japan, France, and Italy. The United Kingdom ranked first until 1926. Germany then replaced it as the largest user of our cotton, and held this position until 1931, when Japan took the lead.

From 1931 through 1938 more American cotton went to Japan than to any other country, except in 1932 when Germany again ranked first, and in 1937 when the United Kingdom took the lead. The latter again was first in 1939.

Since 1934 exports of American cotton to Germany have steadily declined. This probably reflects the marked increase in the use of synthetic fibers in Germany. Table XLIV shows that Germany took 21 per cent and 25 per cent of our total cotton exports in 1924 and 1929, respectively, but only 8 per cent in 1934 and only 1 per cent in 1939. The causes of this diversion to synthetic fibers are rooted in the political, economic, and

TABLE XLIV

Exports of Cotton From the United States by Countries of Destination

	Bales (1) (000 Omitted)				Percentage of Total			
	1924	1929	1934	1939	1924	1929	1934	1939
TOTAL	8,239	7,096	5,066	6,471	100	100	100	100
United Kingdom	2,605	1,306	787	1,954	32	18	16	30
Germany	1,766	1,770	382	36	21	25	8	1
France	933	860	383	776	11	12	8	12
Italy	748	705	500	578	9	10	10	9
Belgium	..	182	100	217	..	3	2	3
Spain	..	285	258	295	..	4	5	4
Netherlands	..	143	65	171	..	2	1	3
Poland	..	(2)	222	17	..	..	4	(3)
Portugal	..	53	45	35	..	1	1	1
Sweden	..	54	92	204	..	1	2	3
Russia	..	165	58	..	..	2	1	..
Other Europe	1,089	44	104	200	13	1	2	3
Japan	850	1,071	1,605	916	10	15	32	14
China	..	232	163	421	..	3	3	7
British Indies	..	15	50	90	..	(3)	1	1
Canada	..	185	226	426	..	3	4	7
Other Countries	248	26	26	135	3	(3)	(3)	2

(1) Of 500 lbs. gross weight.
(2) Less than 500 bales
(3) Less than one-half of 1 percent.

Source: U. S. Department of Agriculture, "Agricultural Statistics," 1936 and 1942; "Yearbook of Agriculture," 1928.

TABLE XLIV (Continued)

Exports of Cotton From the United States by Principal Customs Districts

Customs District	Bales (000 Omitted) 1924	1929	1934	1939
New York	560.2	99.0	23.6	12.8
Virginia	195.9	110.5	11.4	7.5
North Carolina	102.3	98.9	8.1	..
South Carolina	112.7	126.3	114.6	28.0
Georgia	456.9	373.6	140.7	45.9
Mobile	58.7	294.9	215.9	100.8
New Orleans	1,238.1	1,198.7	1,084.1	958.5
Galveston	3,496.7	4,113.2	3,140.4	2,461.7
San Antonio	8.7	345.4	278.4	259.8
Los Angeles	62.0	260.4	224.1	256.1
San Francisco	101.4	60.8	60.6	94.6
Michigan	85.6	158.1	174.6	224.1
All Others	174.2	177.9	276.6	109.1
Total	6,653.4	7,417.7	5,753.1	4,558.9

The totals in this table do not agree with those listed elsewhere in this report. Totals in Part 1 of this table are for crop years and bales of 500 pounds gross weight. The totals in Part 2 are for calendar years and running bales. Totals in Table XLIII are for 12 months beginning August 1 of the stated year and are running bales.

Source: U. S. Dept. of Commerce, Foreign Commerce and Navigation.

military policies in Germany which culminated in the present war, and the future in these respects will depend very largely upon the outcome of the war.

As the second part of Table XLIV indicates, there has been a marked shift between 1924 and 1939 in the proportion of exports cleared through the different customs districts of the United States. The Eastern Seaboard districts have fallen from 21 per cent of the total in 1924 to 2 per cent of the total in 1939. The Gulf districts rose from 72 per cent to 77 per cent.

In considering these percentage distribution changes, it should be borne in mind that total exports, and with but few exceptions, exports from the principal customs districts, have fallen heavily since 1924.

Packaging Methods

The packaging of American cotton for export is an item of great importance. American bales usually are poorly covered and unattractive. At times, they have no covering whatever on the sides, and the bagging is so badly cut and torn as to give little or no protection. Because of these conditions, the American bale contains considerable dirt and stained and soiled cotton which must be removed before the rest of the cotton can be used. Foreign bales, on the other hand, usually are neat and attractive, as well as adequately protected.

The question of tare on American bales also arises in foreign markets. Our bales carry approximately 3 per cent more tare weight than foreign bales. As cotton is sold on a gross-weight basis, this places American cotton at an added disadvantage in foreign markets.

Most American bales are covered with burlap bagging, which is somewhat heavier and less expensive than cotton-cloth covering. Government experts and leaders of the cotton industry have long urged that it would be to the industry's advantage to cover its bales with cotton cloth rather than burlap. Not only would this better protect the cotton and make a lighter and more presentable bale, but it would also create an additional consumption outlet for between 100,000 and 200,000 bales of cotton annually.

Value of Cotton Exports

Cotton was for many years the most important article of American exports from a monetary standpoint. Since 1913 the value of raw cotton exports has on several occasions exceeded 20 per cent of the value of all merchandise exports.

Table XLV compares the respective values of our cotton exports and our total merchandise[1] exports, by years from 1913 to 1940. Cotton represented 26 per cent of the value of total merchandise exports in 1914, 24 per cent in 1933, 23 per cent in 1913, 22 per cent in 1925 and 1932, and 21 per cent in 1924. After 1933, however, the percentage has been below 20 per cent and is steadily decreasing, having fallen as low as 7 per cent in 1938, the last prewar year.

A further illustration of the importance of cotton exports to our economy is afforded by comparing the value of our cotton exports with the total value of all imports for consumption. At times the value of cotton exports has amounted to as much as 30 per cent of the value of all imports for consumption. Table XLVI compares the respective values during representative years.

United States Imports of Cotton

This country imports a relatively small quantity of cotton. In the 32-year period of 1909-40, annual imports were never as much as 500,000 bales except in 1919, when we imported 720,000 bales. From 1930 through 1940 our imports ranged from 107,000 to 266,000 bales and averaged 151,000 bales. Most of the foreign cotton we import is grown in British India, Egypt, Mexico, and China, in that order.

Short-staple cotton (under 1⅛″) is imported duty-free Long-staple cotton (1⅛″ and over) is subject to a duty of 7 cents per pound. Effective September 20, 1939, imports were limited under Section 22 of the Agricultural Adjustment Act of 1933, as amended, to 14,517,000 pounds of short-staple and 45,656,000 pounds of long-staple cotton. The restriction on short-staple imports does not apply to Asiatic cotton of less than ¾″ staple.

Imports from India and China are short, rough Asiatic cottons, used in combination with American cotton to impart a wool-like nap to cotton blankets. Egyptian cotton imported is long-staple, 1⅛″ or over. It is used principally for sewing

[1] Merchandise includes everything but gold and silver.

thread, tire fabric, and fine woven goods. The amount of South American cotton imported is almost negligible.

Table XLVII shows cotton imported by the United States from the various countries, by decades, from 1910 to 1940.

TABLE XLV

United States Total Merchandise Exports Compared With Cotton Exports

(000 Omitted)

Year	Total Merchandise Exports	Raw Cotton Exports	Cotton Per cent of Total
1913	$2,428,506	$547,357	23
1914	2,329,684	610,475	26
1915	2,716,178	376,218	14
1916	5,422,642	545,229	10
1917	6,169,617	575,304	9
1918	6,047,875	674,123	11
1919	7,749,816	1,137,371	15
1920	8,080,481	1,136,409	14
1921	4,378,928	534,242	12
1922	3,765,091	673,250	18
1923	4,090,715	807,103	20
1924	4,497,649	950,581	21
1925	4,818,722	1,059,751	22
1926	4,711,721	814,429	17
1927	4,758,864	826,306	17
1928	5,030,099	920,008	16
1929	5,157,083	770,830	15
1930	3,781,172	496,798	13
1931	2,377,982	325,667	14
1932	1,576,151	345,164	22
1933	1,647,220	398,212	24
1934	2,100,135	372,755	18
1935	2,243,081	390,898	17
1936	2,418,969	361,028	15
1937	3,298,929	368,660	11
1938	3,057,169	228,647	7
1939	3,123,343	242,965	8
1940	3,984,181	213,400	5

Merchandise includes everything but gold and silver.

Source: U. S. Department of Commerce, "Statistical Abstract of the United States," 1941, Tables 585, 589.

TABLE XLVI

Comparison of Total Imports for Consumption with Cotton Exports

Value (000 Omitted)

Year	Total Imports for Consumption	Cotton Exports	Cotton Exports, Per cent of Total Imports
1919	$3,827,683	$1,137,371	30
1924	3,575,111	950,581	27
1933	1,433,013	398,212	28
1939	2,276,099	242,965	11

Source: U. S. Department of Commerce, "Statistical Abstract of the United States, 1941," Table 584.

TABLE XLVII

Cotton Imports to the United States by Countries of Origin

Bales (1) (000 Omitted)

	1910	1920	1930	1940 (2)
India	5	11	35	119
Egypt	185	91	22	67
Mexico	(3)	92	14	9
China	19	24	31	..
Peru	10	24	2	4
Brazil	(4)	(4)	(4)	2
Other Countries	19	22	4	1
TOTAL	238	263	107	203

(1) Of 478 pounds net.
(2) Preliminary.
(3) Less than 500 bales.
(4) Included in "Other Countries".

Source: U. S. Department of Agriculture, "Agricultural Statistics," 1936, Table 429; 1942, Table 696; "World Cotton Situation," p. 24.

Chapter VII
Supply and Distribution

World Supply, Demand and Carry-Over

World production, mill consumption, carry-over, and additions to or reductions in carry-over of commercial cotton, by years, from 1920 to 1942, are shown in Table XLVIII.

World production and consumption were closely in balance in 1928, the year preceding the depression. Carry-over at the end of that year totaled 10,541,000 bales, or approximately 4 months' world consumption. As the depression made itself felt in 1929, 1930, and 1931, consumption fell off sharply, while production remained at the level of preceding years. This resulted in a world carry-over on July 31, 1932, of 18,336,000 bales, representing nearly 9 months' requirements at the then-prevailing rate of consumption.

The rise in world carry-over of American cotton from 4,500,000 bales in 1929 to 13,000,000 bales in 1932 caused prices in the United States to fall from 16 cents to less than 6 cents per pound. Despite lower prices, domestic consumption fell from 7,000,000 bales in 1928 to less than 5,000,000 bales in 1931. This demonstrated that the cotton farmer could not depend upon lower prices to stimulate consumption sufficiently to solve the surplus problem.

The 1932 season marked an upturn in world economic conditions, but cotton prices remained at an extremely low level. World consumption showed a pronounced recovery, and production was substantially below the level of the late 1920's. For the first time in 5 years a reduction in carry-over took place.

In 1933 the United States began cotton control[1]. During the 4 years 1933-36 the harvested area averaged only 28,582,000 acres, in comparison with 42,462,000 acres during the preceding 10 years. Ginnings averaged 11,225,000 running bales in the 1933-36 period, contrasted with 14,400,000 running bales in the 1923-32 period. Various loan programs, acreage-restriction measures, and an improvement in general business operated to raise and hold prices substantially higher than in depression years. Meanwhile, however, cotton acreage and production abroad were increasing rapidly. In 1936 production of commercial cotton abroad reached an all-time record of 19,679,000[2] bales, in contrast with an annual average of 10,635,000 bales during the 10 years 1920-29 and 12,585,000 bales during the 10 years 1926-35.

Due to increased consumption throughout the world and curtailment of production in the United States from 1933 through 1936, world carry-over was reduced to less than 14,000,000 running bales at the end of both the 1935 and 1936 seasons.

In 1937 cotton acreage in the United States increased, following the Supreme Court decision which invalidated the production-control provisions of the original Agricultural Adjustment Act[3], and yields in 1937 were far greater than in any other year on record. As a result, the United States crop reached an all-time high of 18,946,000 bales which, coupled with a record foreign production of 19,679,000 bales, set an all-time peak

TABLE XLVIII

Commercial Cotton: World Production, Mill Consumption, Changes in Carry-over, and Carry-over at End of Season

Bales (1) (000 omitted)

Year Beginning August 1	Production	Consumption	Increase or Decrease in Carry-over (2)	Carry-over at End of Season July 31
1920	20,628	17,151	+3,477	15,169
1921	15,173	19,778	−4,605	10,494
1922	18,451	21,337	−2,886	7,571
1923	19,090	20,027	− 937	6,614
1924	24,094	22,734	+1,360	7,948
1925	26,743	24,168	+2,575	10,473
1926	27,930	25,679	+2,251	12,654
1927	23,343	25,442	−2,099	10,535
1928	25,802	25,778	+ 24	10,541
1929	26,251	24,875	+1,376	11,892
1930	25,376	22,432	+2,944	14,808
1931	26,479	22,889	+3,590	18,336
1932	23,461	24,651	−1,190	17,116
1933	26,066	25,602	+ 464	17,540
1934	23,042	25,480	−2,438	15,072
1935	26,141	27,529	−1,388	13,649
1936	30,729	30,638	+ 91	13,695
1937	36,745	27,573	+9,172	22,702
1938	27,509	28,507	− 998	21,638
1939	27,326	28,486	−1,160	20,272
1940	28,594	26,542	+2,052	22,041
1941	26,201	25,572	+ 629	22,520
1942	26,483	24,850	+1,633	23,914

(1) American in running bales (counting round bales as half bales); foreign in bales of approximately 478 pounds net.

(2) This column is the difference between production and consumption. Carry-over also is affected to a minor extent by such factors as cotton lost by fire or otherwise and reclaimed cotton. Hence this column will not precisely agree with changes in the final column.

Source: U. S. Department of Agriculture. Bureau of Agricultural Economics, "The Cotton Situation," October 1943, page 13.

[1] See pages 18 and 19.

[2] Except where otherwise specified all figures for bales from here to the next heading are in bales of 478 lb. net.

[3] For summary of this Act, see Appendix, page 94.

world production of 38,625,000 bales. Meanwhile, with the business recession in the United States and disturbed economic and political conditions in other areas, consumption declined abruptly, and the world cotton carry-over reached 22,702,000 running bales on July 31, 1938.

In 1938 new cotton-control measures under the Agricultural Adjustment Act were in effect, and production dropped sharply in the United States. Total world production was 9,525,000 bales below the record of 38,625,000 bales in the preceding year. Consumption recovered somewhat and exceeded production by 934,000 running bales, but the 1939 season began with 21,638,000 running bales on hand, 9 months' supply.

Although world production has decreased sharply since the 1937 peak it has not fallen below world consumption, except slightly in 1938 and 1939, so that the end of the 1942 season, July 31, 1943, saw a world carry-over of almost 24,000,000 bales, considerably greater than ever before.

Domestic Supply, Demand and Carry-Over

Table XLIX shows the supply, distribution and carry-over of cotton, domestic and foreign, in the United States, by years, from 1914 to 1942.

Until 1928 the carry-over of cotton in the United States was usually equivalent to 6 months' consumption. Beginning with the 1929 depression, consumption and exports both fell below normal, but ginnings remained above 12,000,000 bales until 1934. Thus, carry-over in several instances greatly exceeded the cotton required for the next full season.

Carry-over in the United States averaged 11,597,000 bales for the 5-year period 1938-42. In each of these years carry-over was greater than consumption the following season, even though consumption was larger in 1941 than ever before.

As shown in Table XLIX, the total supply of all cotton in the United States, which includes the carry-over from the previous year, ginnings, and imports, has been greater during each of the 6 years 1937-42 than in any previous year. In these years supply averaged 23,325,000 bales. The record crop of 1937, reduction in consumption of more than 2,000,000 bales, and subnormal exports in 1937 resulted in the then-record carry-over of 11,533,000 bales on August 1, 1938. This record was exceeded at the end of that season, when further reductions in exports caused carry-over to reach 13,033,000 bales. The greatest American supply of cotton in history (24,612,000 bales) occurred in 1939 as a result of the backlog of the 2 previous years.

The cotton supply in the United States during the 1942 season was 23,140,000 bales, of which 62 per cent was 1-inch and less and 16 per cent was below white in grade. White cotton made up 80 per cent of the supply, and of this white cotton 54 per cent was below Middling. This shows that, because of the mills' desire to turn out yarns as rapidly as possible, the better grades of cotton in our supply have been used, leaving a tremendous amount of short and inferior cotton. Thus, while we have had during the past several seasons more than 10,000,000 bales in the carry-over and a yearly supply of more than 23,000,000 bales, a large percentage of this cotton has not been fit for spinning, certainly not at the rate our mills have been running since the beginning of the war.

A new outlet for such inferior cotton has recently been discovered in the production of cotton insulation utilizing short-staple, low grade cotton. It is estimated that in 1944 cotton insulation will consume 175,000 bales of this sort of cotton.

TABLE XLIX

Cotton Supply and Distribution, United States

Bales (1) (000 Omitted)

Year Beginning Aug. 1	Supply: Carry-Over Beginning of Season Foreign	Supply: Carry-Over Beginning of Season Total	Supply: Ginnings in Season (2)	Supply: Imports (3)	Supply: Total Supply	Distribution: Consumption Foreign	Distribution: Consumption Total	Distribution: Destroyed	Distribution: Exports (4)	Distribution: Carry-Over End of Season Foreign	Distribution: Carry-Over End of Season Total
1914	73	1,366	16,162	363	17,891	222	5,597	35	8,323	143	3,936
1915	145	3,936	11,171	421	15,528	317	6,397	95	5,896	212	3,140
1916	212	3,140	11,418	289	14,847	318	6,789	35	5,303	143	2,720
1917	143	2,720	11,451	217	14,388	184	6,566	25	4,288	111	3,509
1918	111	3,509	12,147	197	15,853	176	5,766	50	5,592	83	4,445
1919	83	4,445	11,686	683	16,814	417	6,420	25	6,545	283	3,824
1920	283	3,824	13,558	211	17,593	216	4,893	60	5,744	172	6,896
1921	172	6,896	8,238	352	15,486	297	5,910	70	6,184	166	3,322
1922	166	3,322	10,045	450	13,817	344	6,666	37	4,789	196	2,325
1923	196	2,325	10,307	272	12,904	328	5,681	20	5,647	117	1,556
1924	117	1,556	13,969	303	15,828	276	6,193	26	7,999	107	1,610
1925	107	1,610	16,169	314	18,093	280	6,456	50	8,044	129	3,543
1926	129	3,543	18,014	382	21,939	309	7,190	70	10,917	100	3,762
1927	100	3,762	12,836	321	16,919	299	6,834	20	7,529	111	2,536
1928	111	2,536	14,481	442	17,459	313	7,091	18	8,038	182	2,312
1929	182	2,312	14,656	368	17,336	302	6,106	25	6,675	208	4,530
1930	208	4,530	13,789	99	18,418	179	5,263	28	6,757	107	6,370
1931	107	6,370	16,836	107	23,313	122	4,866	62	8,707	98	9,678
1932	98	9,678	12,948	124	22,750	133	6,137	30	8,418	83	8,165
1933	83	8,165	12,713	137	21,015	148	5,700	40	7,531	96	7,744
1934	96	7,744	9,515	107	17,366	120	5,361	30	4,767	71	7,208
1935	71	7,208	10,403	155	17,766	131	6,351	35	5,971	73	5,409
1936	73	5,409	12,269	249	17,927	182	7,950	45	5,433	112	4,499
1937	112	4,499	18,284	158	22,941	132	5,748	65	5,595	87	11,533
1938	87	11,533	11,617	132	23,282	122	6,858	66	3,325	76	13,033
1939	76	13,033	11,420	159	24,612	128	7,784	73	6,191	95	10,564
1940	95	10,564	12,318	188	23,069	146	9,722	70	1,112	140	12,166
1941	140	12,166	10,562	191(5)	22,928	196	11,170	50	1,125(5)	135	10,640
1942	135	10,640	12,500	(6)	23,140	170	11,100	60	(6)	88	10,657

(1) Domestic cotton in running bales, counting round bales as half bales; foreign cotton in equivalent 500-pound bales.
(2) Ginnings during the 12 months, August 1 through July 31. Excludes cotton from current crop ginned prior to August 1 and includes cotton from next crop ginned prior to August 1 of the following year. Includes an allowance for "city crop" which consists of rebaled samples and pickings from cotton damaged by fire and weather.
(3) Total imports minus re-exports.
(4) Total exports minus re-imports, except for the figures prior to 1919, which are total exports.
(5) Estimated by New York Cotton Exchange.
(6) Not available.

Source: U. S. Department of Agriculture, "Agricultural Statistics" 1943, Table 78.

Chapter VIII
Cotton Linters

Description of Linters

The cotton gin detaches from the seed only the longer fibers of lint, leaving the seed covered with short, fuzzy lint which must be at least partially removed for good milling results. After arriving at oil mills, the seed is passed through delinters, which cut off the short fibers. The product, known as linters, is pressed into bales averaging 600 pounds. Seed from long-staple cotton yields almost twice as much linters as that from short-staple cotton.

All oil-mill operators put the seed through a delinting machine at least once, and in the majority of instances it is run through twice. The terms "first cuts", "second cuts" and "millruns", describe methods employed in delinting rather than the quality of the linters.

Mills that put the seed through the delinter a second time take a very light first cut, with a closer second cut. The product of the first cut contains more of the longer staple, is practically free of foreign matter, and is known in the trade as "first-cut linters". This cut yields from 20 to 50 pounds for each ton of seed. The second delinting produces "second-cut linters" which contain more of the shorter fibers and have a large amount of foreign matter. This cut yields from 30 to 200 pounds for each ton of seed. When cottonseed is run through the delinting machine but once the product is known as "mill-run linters" and yields from 35 to 100 pounds for each ton of seed.

During the 10-year period 1932-41 linters obtained per ton of cottonseed crushed averaged 147 pounds. For the 4 years 1938-41, it averaged 168 pounds.

Use of Linters

"First-cut" or "mill-run" linters are used chiefly for spinning low-grade yarns, which are used for carpets, mops, clotheslines, strings, wicks, etc., and for making mattresses, pads for automobiles, upholstery, padding for horse-collars, and stuffing for cushions. This grade is also bleached, sterilized, and batted for surgical dressings, such as absorbent cotton, bandages, sterilized gauzes, etc.

"Mill-run" and "second-cut" linters move to consumers in the chemical industry who use cellulose as a base for their products. Cotton linters contain 70 per cent to 85 per cent of available cellulose. The chemical industry converts them into gun cotton, nitrocellulose, smokeless powder, varnishes, lacquers, rayon, etc.

Grade, Color and Staple Lengths

Under the Cotton Standards Act, 1923[1], linters are classified into 7 grades. These range from the highest first cuts to the lowest second cuts. Grades 1 and 2 represent first cuts, Grade 3 first cuts or mill-runs, Grade 4 mill-runs, Grade 5 mill-runs, and second cuts, and Grades 6 and 7 second cuts. Linters are usually olive, grayish, or buff. However, exposure to either air or light may change the color. Linters range in staple lengths from 5/32″ to ⅝″.

Production, Consumption and Exports

Table L shows American production, consumption and exports of linters, by years, from 1909 to 1943. Chart J shows graphically the trends of these statistics. Production has been steadily increasing since 1909 when the United States produced 310,433 equivalent bales of 500 pounds.[2] During the first World War, production for the first time exceeded 1,000,000 bales and, except for the poor crop year of 1921, it has consistently risen. During the 17-year period 1925-41 production of linters has been below 1,000,000 bales in only 3 years. The largest crop, of 1,819,000 bales, was produced in 1937. The present war has again stimulated linter production.

War always stimulates the production of linters, because they are used in the manufacture of smokeless powder, gunwadding, etc. However, production of linters also increased in peacetime and in the face of decreased cotton production. Several factors may account for this:—1) Increased demand for linters to manufacture rayon; 2) Discovery of new uses for cellulose, such as paint, film, cellophane, artificial leather, plastics, etc; 3) Increased staple length of cotton.

Production by States

Table LI shows, by decades, from 1910, the production of linters in each state for which statis-

[1] See Appendix page 94, for summary of this Act.

[2] All statistical bales under this and the next heading are equivalent bales of 500 pounds gross weight.

tics are compiled. For many years Texas has been the principal linter-producing state, with Mississippi and Georgia usually ranking next, in order. In recent years Arkansas has moved forward in the production of linters, and in 1940 it ranked next to Texas. In 1910 Texas produced 123,000 bales, or 31 per cent of our entire crop. In the same year Georgia was the only other state producing over 50,000 bales. In 1940 Texas production had increased to 335,000 bales, Arkansas to 203,000 bales, Mississippi to 196,000 bales, and Tennessee to 144,000 bales. These were increases of 212,000, 176,000, 152,000, and 126,000 bales, respectively, over 1910.

TABLE L

Linters

Production, Consumption and Exports in the United States

Bales (000 Omitted)

Year	Production (1) Running Bales	Production (1) Equivalent 500-lb. Bales Gross Weight	Consumption (2) Running Bales	Consumption (2) Percentage of Production	Exports (3) 500-lb. Bales	Exports (3) Percentage of Production
1909	313	310	177	57	(4)	..
1910	398	397	207	52	(4)	..
1911	556	558	238	43	(4)	..
1912	602	601	303	50	(4)	..
1913	631	639	307	49	(4)	..
1914	832	857	412	50	226	26
1915	945	931	881	93	251	27
1916	1,300	1,331	870	67	474	36
1917	1,096	1,126	1,119	102	186	17
1918	910	930	458	50	84	9
1919	595	608	342	58	52	9
1920	429	440	516	120	53	12
1921	382	398	639	167	126	32
1922	591	608	646	109	48	8
1923	640	669	537	84	115	17
1924	858	897	659	77	200	22
1925	1,044	1,115	804	77	102	9
1926	1,042	1,158	806	77	278	24
1927	875	1,016	780	89	231	23
1928	1,086	1,282	879	81	219	17
1929	1,038	1,241	805	78	143	12
1930	824	986	714	87	132	13
1931	876	1,067	637	73	145	14
1932	741	912	761	102	218	24
1933	801	982	767	96	216	22
1934	805	1,001	719	89	262	26
1935	876	1,089	734	84	305	28
1936	1,127	1,407	819	73	340	24
1937	1,471	1,819	715	49	352	19
1938	1,113	1,378	851	76	269	20
1939	1,072	1,330	1,061	99	432	33
1940	1,208	1,507	1,359	113	30	2
1941	1,184	1,488	1,488	126	...	..
1942	1,355	1,706	1,301	97	...	..
1943 (5)	1,183	1,489	1,362	115	...	..

(1) Year beginning August 1.
(2) Statistics for years prior to 1914 are for 12 months beginning September 1, thereafter Aug. 1.
(3) Year beginning July 1.
(4) Exports of cotton and linters were not shown separately prior to 1914 season.
(5) Preliminary.

Sources:
Production—U. S. Department of Commerce, Bureau of Census, "Cotton Production and Distribution," Bulletin 179, Table 3.
Consumption—U. S. Department of Commerce, Bureau of Census, "Cotton Production and Distribution," Bulletins 179, 175, 173, 169, 164, 156, 147, 137 and 125.
Export—U. S. Department of Agriculture, "Agricultural Statistics," 1942, Table 693; 1936, Table 426.

Chart J

COTTON LINTERS: UNITED STATES PRODUCTION, CONSUMPTION, AND EXPORTS 1909 - 1941

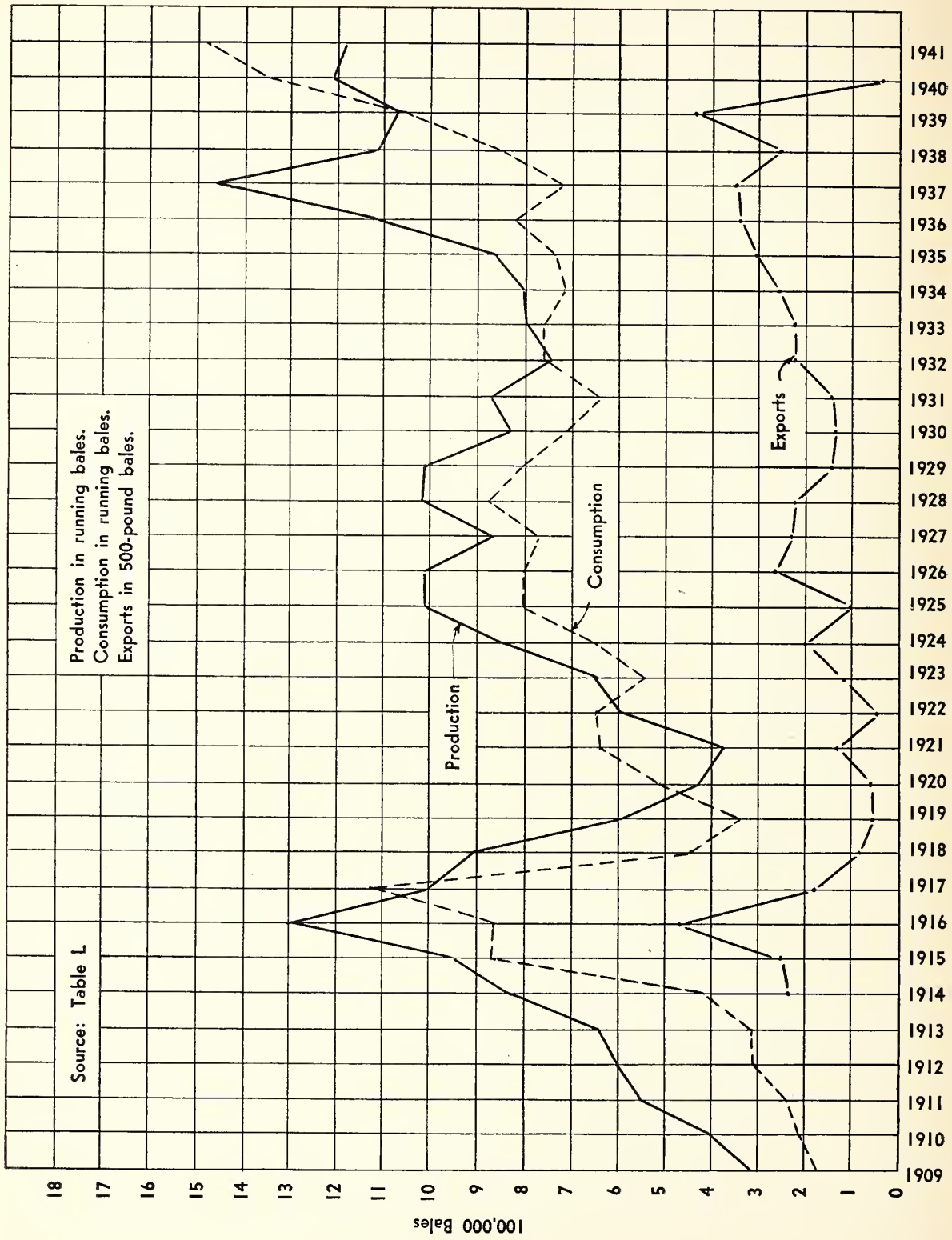

TABLE LI

Production of Linters in the United States by States

Bales (1) (000 Omitted)

	1910	1920	1930	1940
United States	397	440	986	1,507
Alabama	29	13	72	57
Arizona	(2)	(2)	11	21
Arkansas	27	32	65	203
California	(2)	(2)	28	76
Georgia	53	65	135	127
Louisiana	10	14	45	47
Mississippi	44	36	155	196
North Carolina	21	39	62	85
Oklahoma	36	31	53	81
South Carolina	28	59	62	88
Tennessee	18	23	61	144
Texas	123	115	224	335
All Other States	8	14	13	47

(1) Of 500 pounds gross weight.
(2) Included in "All Other States."

Source: U. S. Department of Commerce, Bureau of Census, "Cotton Production and Distribution," Bulletin 179, Table 3, page 4; Table 4, page 8.

Prices

Table LII shows the weighted average price of linters in the United States, by years, from 1911 to 1942. With but few exceptions, the average price per pound has been below 5 cents. However, there is wide variation, according to grade, in the prices of linters. For instance, in 1929, Grade 2 was 5.3 cents; Grade 4 was 3.4 cents and Grade 6 was 2.3 cents per pound. In 1938, Grade 2 was 3.4 cents, Grade 4 was 2.1 cents, and Grade 6 was 1.3 cents per pound.

Value of Production

The value of our production of linters is small in comparison with the value of the cotton crop, or with cash income from farm marketings of all crops. In fact, the value of linters is generally less than 1 per cent of that of all cash income from farm marketings of crops. In some states, however, such as Texas and Tennessee, it amounted in 1941 to 2 per cent and 3 per cent, respectively, of the cash income from farm marketings of all crops. Table LIII shows the value of cotton linters obtained from cottonseed in the United States, by years, from 1909 to 1943.

TABLE LII

Weighted Average Prices of Linters in the United States

(Cents per Pound)

Year Ending July 31	Price	Year Ending July 31	Price
1911	3.3	1926	4.3
1912	1.9	1927	3.0
1913	2.5	1928	5.1
1914	2.3	1929	4.5
1915	1.5	1930	3.2
1916	2.9	1931	1.8
1917	7.1	1932	1.3
1918	4.9	1933	1.3
1919	5.0	1934	3.4
1920	4.2	1935	4.3
1921	1.7	1936	3.9
1922	3.5	1937	4.2
1923	5.9	1938	2.1
1924	6.9	1939	1.8
1925	4.9	1940	2.8
		1941	3.6
		1942	4.5

Source: U. S. Department of Commerce, "Statistical Abstract of the United States," 1942, Table 771, page 806; 1932, Table 632, page 656; 1923, Table 221, page 216. Weighted average based on gross weight of bale.

TABLE LIII

Value of Cotton Linters Obtained in the United States

(000 Omitted)

Year Ending July 31	Value	Year Ending July 31	Value
1909	$2,340	1926	$23,218
1910	4,770	1927	16,684
		1928	24,878
1911	6,250	1929	27,793
1912	5,150	1930	20,149
1913	7,450		
1914	7,630	1931	8,969
1915	6,150	1932	6,694
		1933	5,931
1916	26,120	1934	16,490
1917	45,193	1935	21,606
1918	26,604		
1919	22,228	1936	20,970
1920	12,336	1937	29,739
		1938	18,927
1921	3,506	1939	12,267
1922	6,619	1940	18,920
1923	17,199		
1924	22,007	1941	27,397
1925	21,268	1942	33,521
		1943	37,586

Source: U. S. Department of Commerce, Bureau of Census, Cotton Production and Distribution Bulletins 180, Table 34, pp. 55–56; 160, Table 43, pp. 64–65.

Importance of Linter Traffic and Revenue

The importance of cotton to the railroads of the United States, especially those in the Southern and Southwestern Regions, is even greater when the tonnage and revenue from linters[1] are taken into consideration.

As production of linters has increased, the number of carloads and tons handled by the Class I railroads and their total revenue have likewise increased. In 1928 the Class I railroads carried 64,000 carloads and 974,000 tons of linters, yielding $3,272,000 while in 1942 they carried 104,000 carloads and 2,058,000 tons, yielding $5,876,000.

Transportation

The Class I railroads in 1942 originated 37,000 carloads of linters, of which 23,000, or 62 per cent, originated in the Southern Region and 6,300 carloads, or 17 per cent, originated in the Southwestern Region. The railroads in Southern and Southwestern Regions combined originated 29,300 cars, or 79 per cent of the total.

Southern Region

Cotton linters originated by Class I railroads in the Southern Region increased from 14,000 carloads in 1928 to 16,000 carloads in 1939 and 23,000 carloads in 1942. The average load per car originated increased from 14.4 tons in 1928 to 17.7 in 1939 and 17.9 in 1942. The revenue received from all linters carried in this region has consistently represented more than 1 per cent of the revenue from all agricultural products. It was 1.1 per cent in 1928, 2 per cent in 1939 and 2.6 per cent in 1942. Cotton linter revenue in Southern Region in 1942 was $2,737,000, an increase of $1,500,000 over 1928.

Southwestern Region

Cotton linter revenue and traffic is not so large for the Southwestern Region as for the Southern Region railroads; however, it does afford them substantial traffic and revenue. One reason why linter traffic and revenue is less in the Southwestern Region than in the Southern Region is the fact that there are fewer cotton mills in the former. Therefore, the railroads in the Southwestern Region do not have an opportunity to secure as much cotton waste, sweepings, and refuse from cotton mills as those in the Southern Region. Also, several railroads, such as the AT&SF, CRI&P, and FW&DC, have mileage in the Southwest and

[1] Tonnage and revenue figures of Class I railroads include other articles carried under the same commodity heading, such as cotton-mill sweepings, waste, etc., also cottonseed hull fiber and shavings.

handle substantial amounts of cotton linters, but their statistics are not included by the Interstate Commerce Commission in the Southwestern Region.

Class I carriers in the Southwestern Region originated 6,300 cars and 140,000 tons in 1942, compared with 4,900 cars and 76,000 tons in 1928. The revenue on cotton linters carried in 1942 by these railroads was $1,010,000, or 1.3 per cent of the revenue from all agricultural products, compared with $689,000, or .7 per cent of all agricultural-products revenue in 1928.

Rates

Cotton linters generally move in carload lots in box cars. Linters originated on Class I railroads averaged 39,000 pounds per car during the 10-year period 1933-42.

As a result of a general investigation of cottonseed and its products, Docket 17000, Part 8[1] the following basis on linters was approved for application within and from the South:—20,000-pound minimum, 40 per cent; 29,000-pound minimum, 30 per cent; and 40,000-pound minimum, 22.5 per cent, of the contemporaneous first-class rates. These percentages were the same as sixth class, eighth class and tenth class, respectively. The Commission in the same decision prescribed for application within and from Southwestern territory rates on linters on the basis of 37 per cent of first class, minimum weight 20,000 pounds; 27.5 per cent, minimum weight 29,000 pounds; and 21 per cent, minimum weight 40,000 pounds. As modified under Ex Parte 115 and 123, the rates thus made are in effect today.

Consumption Compared with Production

American consumption of linters is in direct contrast with consumption of cotton. As previously shown, we normally consume about 45 per cent of our cotton crop, whereas in the 30 years 1909-38 we consumed about 77 per cent of all linters produced. For the 33-year period 1909-41 linter consumption was 81 per cent of production, while for 1938 it was 104 per cent, for 1941 it was 126 per cent, and for 1943 it was 115 per cent. Linter consumption has steadily increased, from 177,000 bales in 1909 to 851,000 bales in 1938, and to a peak of 1,488,000 bales in 1941. There was a slight decline in 1942 and 1943 from the 1941 peak, as shown in Table L. Due to the war demand the distribution of all linters is now controlled by the Commodity Credit Corporation, which allocates specific amounts for each type of consumer.

[1] 203 ICC 177, 1934.

Consumption by States

The Bureau of the Census has published linter-consumption statistics for 20 individual states, since 1909. However, to maintain trade and military secrets, some of the chief consuming states have been carried under the heading "All Other States"; seldom has the Bureau shown separate statistics for each of the 20 states at one time. In 1909, 42 per cent of all linters consumed appeared under "All Other States"; in 1917, 77 per cent; in 1936, 66 per cent; and in 1941, 78 per cent. With location of consumption concealed as to 78 per cent of all linters in 1941, there is little opportunity for informative discussion of individual state consumption. Of the states for which individual statistics are shown for 1941, Texas was the heaviest consumer, with 58,400 bales or 3.9 per cent of the total. Illinois and California ranked next with 54,300 bales, or 3.7 per cent, and 50,000 bales or 3.4 per cent of the total, respectively.

Table LIV shows by decades from 1910, the consumption of linters by states.

Exports

In 1914, the first year for which statistics on exports of linters are available[1] we exported 226,000 bales[2] of linters, or 26 per cent of our total production. Exports rose sharply during the war years 1915 and 1916, amounting in 1916 to 36 per cent of production, but dropped to 9 per cent in 1918 and 1919.

During the early 1920's linters exports were relatively low in volume. Since 1924 there has been considerable fluctuation, but on the whole, the trend, has been upward.

For the years 1924-38 we exported, on the average, 20 per cent of our total production. The outbreak of war in Europe in 1939 raised linters exports to 432,000 bales, or 33 per cent of the total

[1] See Table L, page 83.

[2] Bales of 500 pounds gross weight are used in the remainder of this chapter, unless otherwise specified.

TABLE LIV

Consumption of Linters in the United States

Running Bales (000 Omitted)

Year Beginning Aug. 1 [1]	1910	1920	1930	1940
United States	207	516	714	1,359
Alabama	14	4	3	2
California	[2]	[2]	32	59
Connecticut	14	13	10	4
Georgia	14	15	15	15
Illinois	8	55	52	66
Indiana	3	8	9	10
Maine	[3]	[3]	[2]	[2]
Massachusetts	10	8	12	15
Mississippi	1	3	2	2
New Hampshire	[3]	[3]	[2]	[2]
New Jersey	3	21	43	37
New York	10	36	50	44
North Carolina	5	4	12	12
Pennsylvania	20	105	28	39
Rhode Island	4	10	1	3
South Carolina	4	3	1	3
Tennessee	6	12	103	[2]
Texas	11	17	16	46
Vermont	..	[3]	[2]	..
Virginia	4	41	82	[2]
All Other States	76	161	243	1,002

[1] Prior to 1914 statistics are for 12 months beginning Sept. 1.
[2] Included in "All Other States".
[3] Less than 500 bales.

Source: U. S. Department of Commerce, Bureau of Census' "Cotton Production and Distribution," Bulletins 179, 175, 173' 169, 156, 147, 137, and 125.

production. In 1940, shipping restrictions and national-defense requirements caused our exports to fall to their lowest mark—30,000 bales, representing but 2 per cent of the total crop. Since 1940 linters exports have not been published.

Exports By Countries of Destination

Prior to 1924 there were no statistics showing the countries to which linters were exported. In the 15-year period 1924-38 Germany imported more of our linters than any other country, taking from one-third to three-fifths of the total, or between 50,000 and 150,000 bales per year. France and the United Kingdom were next in rank, with France leading slightly. France took between 16,000 (1925) and 64,000 (1936) bales, while Great Britain imported from 7,000 (1929) to 80,000 (1938) bales.

Commencing with 1938, war trends made themselves felt in our linters exports. In that year Germany's imports fell from 119,000 bales in the previous year to 55,000 bales. France and England increased their takings slightly. The impact of hostilities, together with our embargo against Germany and Lend-Lease to the United Nations, reduced linters exports to Germany to 15,000 bales in 1939. France and the United Kingdom increased their imports to 206,000 and 137,000 bales, respectively.

The Netherlands, Italy, Japan and Belgium, in the order named, also have used substantial quantities of American linters. The combined exports to these four countries were usually about one half of those to Germany. Canada has been a steady user of American linters, but has never taken over 20,000 bales in any year.

Imports

Prior to 1936 linters imports were included with cotton waste. Three countries—Russia, Brazil and Mexico—supplied practically all of our imports from 1936 to 1939. In 1936 imports from Russia and Brazil amounted to 20,000 bales each and from Mexico 12,000 bales. On the whole, until 1940 Mexico exported more linters to us than did Brazil. However, in 1940 Brazil sent us 199,000 bales of linters, or 75 per cent of our total imports, contrasted with 18,000 bales from Mexico, 21,000 from Argentina, and none from Russia. The impact of war increased our 1940 imports to 5 times those of 1936. When compared with our linters production and exports, however, imports are unimportant.

Chapter IX
Conclusions and Comments

Future Demand for Cotton

Assuming that the war with Germany will end early in 1945 and the war with Japan by 1947, the immediate post-war future of cotton appears to be as follows:—

All countries of the world, our country not excepted, will suffer from a clothing, industrial and household cotton shortage at the end of the war. Since 1939 cotton goods have become increasingly scarce in this country, as regards the civilian population. Current belief is that the mills of the Low Countries and France have been or will be dismantled or destroyed. The mills of Italy are located in the industrial region on the Lombardy Plain, north of the River Po, where the Germans are fighting a delaying defensive action. When driven out of Italy, the Germans probably will have completed the destruction of the textile mills not already bombed. It is to be expected that the textile industries of both Germany and Japan will have been destroyed by the end of the war. Therefore, the Allied nations will be called upon to clothe the populations of most of the world.

Domestic consumers have accumulated demands for goods and also have money to buy them when they become available. It is estimated that on June 30, 1944, the holdings of individuals in cash, deposits, and government securities amounted to 130 billion dollars and were increasing at the wartime rate of about 35 billion dollars per year.[1]

A recent survey[2] revealed that almost 4.5 per cent of persons questioned named clothing as their first postwar purchase choice.

In addition to the assured demand for clothing and textiles in this and other countries, there will be a demand for cotton in various industries that use cotton as their base or by-product. Little or no difficulty should be encountered during the next 5 or 6 years in disposing of our cotton crop so long as it does not exceed the prewar average.

While our carry-over has been greater during the last few years than ever before, much of it is of inferior quality. New uses for such cotton in the chemical industry probably will take care of most of this inferior stock. There are positive indications that, through research conducted by the cotton and other industries as well as the Government, a greater demand than ever before will exist for all kinds of cotton after the war.

Leading cotton industrialists have estimated that favorable world conditions for foreign trade could achieve a possible world consumption of 40,000,000 to 50,000,000 bales annually, contrasted with a previous peak of 30,000,000 bales. Just before World War II, the average per-capita world consumption of cotton was approximately 6.3 pounds, compared with the 1934-38 per-capita consumption of 24.6 pounds in the United States.

Estimated Crop Needs

Assuming that the war with Germany will end early in 1945 and the war with Japan by 1947, there will probably be a need for a crop of 12,000,000 or 13,000,000 bales in this country each year through 1949. After that, we will need an export demand larger than the 1935-39 average exports of 5,300,000 bales of cotton in order to market a crop of this or larger size.

Because the price of American cotton has been artificially supported through government intervention, our cotton is gradually meeting with increasingly serious competition from other fibers. After the close of the war American cotton will have much difficulty meeting competition from other cottons in world markets and from synthetic fibers in this country unless its price is quickly and substantially reduced or unless it is subsidized.

One of our principal competitors for world cotton trade in the postwar era will be Brazil. Reports indicate that Brazil has increased its cotton acreage from 2,400,000 acres (average 1930-34) to 6,700,000 acres in 1940. During the 16 years 1923-38 Middling 15/16″ cotton at New Orleans averaged 14.98 cents per pound. In the same period Brazilian Type 5 (a comparable grade) at Sao Paulo averaged 15.51 cents per pound. Since Pearl Harbor American cotton has been from 6.47 cents to 11.74 cents per pound higher than Brazilian cotton.

On August 1, 1944, the average spot price of Middling 15/16″ cotton at the 10 designated markets was 21.78 cents, compared with 25 cents per pound for rayon staple fiber. The Federal Government has guaranteed for 2 years after peace has been proclaimed a price on cotton based upon 92.5 per cent of parity. Parity on August 1, 1944, was

[1] Securities and Exchange Commission, News Release, Sept. 21, 1944.
[2] Fortune Magazine, December, 1943.

21.8 cents per pound. With a Government-supported price of 20 cents or higher after the war American cotton would be unable to meet foreign competition in world markets without subsidy.

Rayon staple fiber at 25 cents per pound is almost as cheap as cotton at 21 cents per pound when the mill waste of from 10 to 20 per cent in cotton is considered. Therefore, cotton cannot fully compete with domestic rayon without a price reduction. Rayon production is man-controlled and has thus far been without Government price intervention. It is entirely probable that expanding rayon production will cause further price reductions, and 1949 may well see a 20-cent price for rayon staple fiber.

Since the chances of disposing of a crop of the 1935-39 average size of 12,800,000 bales after the world returns to normal peacetime conditions depend upon the uncertain prospects of increasing either domestic use or foreign takings of our cotton, there is no reason to believe that production above this level would be encouraged or can be expected. On the other hand, world need for our cotton for military and postwar rehabilitation purposes should dispose of an annual crop of this size and thereby encourage its continued production, up to about 1949.

Estimated Tonnage for Movement

Subject to normal weather conditions, it is estimated that there will be available for movement by all forms of transportation in the first normal postwar year and for the succeeding 2 or 3 years approximately 12,500,000 bales, equivalent to 3,125,000 tons of cotton. The origin and termination of this traffic geographically should be as follows:

ORIGINATE

Virginia	8
North Carolina	162
South Carolina	187
Georgia	225
Alabama	233
Florida	5
Tennessee	125
Mississippi	475
Total South	1,420
Louisiana	150
Arkansas	375
Oklahoma	175
Missouri	100
Texas	700
Total Southwest	1,500
Arizona	50
California	125
New Mexico	25
Total Far West	200
All Others	5
Grand Total	3,125

TERMINATE

Virginia	60
North Carolina	710
South Carolina	550
Georgia	500
Alabama	325
Tennessee	225
Mississippi	80
Total South	2,450
Connecticut	30
Maine	40
Massachusetts	150
New Hampshire	45
New Jersey	10
New York	50
Pennsylvania	10
Rhode Island	45
Total East and New England	380
California	10
Illinois	10
Texas	200
All Others	75
Grand Total	3,125

The estimate as to cotton originations by states is based upon the tonnage originated in each state in the 3 years 1940-42. Estimated terminations by states are based upon the consumption performances of the states during the same 3-year period.

It is useless at this time to try to conjecture what may be the situation as to cotton after 1949. It is impossible to foresee the price of American cotton in relation to foreign cotton and to the synthetic fibers. Moreover, it cannot be known now whether the government will continue its artificial support of cotton-price levels or will initiate a cotton program of more farseeing helpfulness.

Collateral Problems Affecting the Railroads

Several matters of considerable significance to railroads concerned are brought out in this report.

For example, there has been a decline in cotton acreage from 47,000,000 acres in 1926 to 36,000,000 acres in 1932 and to about 22,000,000 acres in 1941 and 1942. What has been done, and what will be done, with the 25,000,000 acres of land thus diverted from cotton? Land that is not used or is used below its maximum efficiency is a community waste and challenges the railroads concerned to help find ways to make it more productive.

From what sources of income are the taxes and other charges on this land being paid? The sta-

tistics indicate that most of it is of relatively inferior productivity. Our studies of corn indicate that a substantial part of it has been diverted to corn, probably for domestic feeding, showing a low yield in bushels per acre. Land that is not at least self-supporting is a drain upon the purchasing power of the community.

Furthermore, what has become of the people who formerly found employment on this 25,000,000 acres of cotton land? The statistics as to decrease in the number of cotton farms and increase in the average size of farms indicate that they were mostly small operators, and other considerations suggest that they were largely tenant farmers. From what source are they now deriving a livelihood, and what has been the effect upon purchasing power and consumption in the South? There is undoubtedly a direct connection between this decline in acreage and the decline in American cotton exports. The link is in price mechanisms; in order to improve domestic prices we sacrified a large part of our export market and encouraged foreign competition in cotton growing. This situation is a matter of the utmost importance for the long-run future of cotton.

We cannot go on producing an annual average (1935-39) of 12,800,000 bales unless we can either find ways to increase our annual average (1935-39) domestic consumption of 6,800,000 bales, or else find increased export outlets to absorb the difference. Otherwise we face the problem of a carry-over piling up, as it did during the period mentioned, at the rate of about 700,000 bales per year or to the extent of 3,500,000 bales during the 5-year period. Eventually, the pressure of such a carry-over either breaks the price or leads to government intervention.

One way to increase domestic consumption, as mentioned in the report, is to promote the use of cotton fabric for packaging the cotton crop itself. Other new or expended outlets for cotton are being sought by agencies representing the cotton industry. Their activities are timely, because per-capita consumption of cotton in the 5 years 1936-40 was substantially what it was 25 years earlier, while other fibers show increases in this respect.

Unless a better balance can be struck between production, on the one hand, and domestic consumption and exports, on the other, by increasing the latter, the only practical alternative is to reduce acreage and production to bring about the balance? What then is to become of this additional land taken out of cotton? What is to become of the people now employed thereon and in the handling of the cotton it now produces? The answers to these questions are important to the traffic of the railroads concerned.

We can maintain and expand our export outlets despite increased production abroad in one of two ways, either by government subsidy of exports or by producing cotton at a cost which will enable us to compete in world markets. The former is an expedient and not a real solution. Such action by one country usually leads to similar action by competing countries, and is economically unsound in addition.

There are indications in this study that the South is on the way toward achievement of the second method. Among these indications are the decrease in number of farms and in cotton acreage, coupled with increasing use of fertilizer and a marked increase in yield per acre. The Southern cotton grower seems to be learning how to produce cotton more cheaply. He has taken his least-productive land out of cotton cultivation and concentrated his efforts and fertilizer on the more-productive land. Since it costs no more to prepare, seed and cultivate a high-yield than a low-yield acre, this means that the South is reducng its unit cost per pound of cotton produced.

One further step along this line which might be taken to advantage is suggested by a comparison of the 1940 average yield of 749 pounds per acre in California with the average yields of 576 pounds in New Mexico, 375 pounds in South Carolina, 240 pounds in Mississippi, 184 pounds in Texas, and 253 pounds for the Cotton States as a whole. There seems to be no good reason why what has been accomplished in California could not be paralleled in other states by the same methods as in California, and probably at cheaper cost.

Comparison of the ratio of tons of cotton handled by railroads to production of cotton with the average farm price of cotton shows a close correspondence of trends. The indication is that the higher the market price the less is the tendency to divert cotton from the rails. An important suggestion to be derived from this showing is that activities which promote good prices for cotton may be a profitable substitute for rate reductions.

Appendix
Summary of Pertinent Federal Laws

Cotton Futures Act, 1916

This act and its amendments in effect give the Secretary of Agriculture jurisdiction over cotton-futures transactions. This purpose is accomplished by levying upon such transactions a tax at the prohibitive rate of 2 cents per pound, but providing exemptions from the tax for transactions conforming to conditions specified in the act or regulations to be established by the Secretary of Agriculture. Among such conditions or regulations are that:

1) the contract of sales must be in writing and bear the signatures of the parties.

2) it must specify the basis grade of the cotton according to standards established by the Secretary of Agriculture.

3) the cotton must be of tenderable quality according to specifications in the act, and the differences above or below the basis grade must be determined as provided in the act.

Exemption from the tax also is provided for specific contracts calling for cotton of a definite grade and staple at a definite price per pound to be delivered on a definite date.

The Secretary of Agriculture is authorized to designate bona-fide spot markets for the purpose of determining the differentials above or below the basis grade as mentioned under 3) above.

Cotton Standards Act, 1923

This act gave the Secretary of Agriculture jurisdiction over the physical standards of cotton. He was authorized to establish and promulgate standards of grade, color, staple length, staple strength, and such other qualities as may practicably be standardized.

He also was authorized to license approved persons as samplers, and upon request to have cotton samples graded, to have cotton matched against samples, and to have cotton samples taken.

The use of non-official standards and non-standard grade names was forbidden.

(The portion of this act giving the Secretary authority to establish and promulgate standards of cotton was incorporated in the Cotton Futures Act of 1916.)

Agricultural Marketing Act, 1929

The declared policy of the act was to "promote the effective merchandising of agricultural commodities in interstate and foreign commerce, so that the industry of agriculture would be placed on a basis of economic equity with other industries, and to that end to protect, control and stabilize the currents of interstate and foreign commerce in the marketing of agricultural commodities and food products 1) by minimizing speculation, 2) by preventing inefficient and wasteful methods of distribution, and 3) by encouraging the organization of producers into effective associations or groups under their own control for greater unity of effect in marketing and by promoting the establishment and financing of a firm marketing system of producer-owned and producer-controlled cooperative associations and other agencies".

The President was authorized to appoint a Federal Farm Board. The Board was authorized to establish advisory commodity committees of 7 members each, and stabilization corporations and clearing-house associations to make loans to cooperatives and stabilization corporations; and to enter into agreements for the insurance of cooperatives against loss through price decline.

Under the act the Federal Farm Board in 1929 established a loan rate of 16 cents on cotton; in 1930 a loan plan was instituted permitting the farmer to borrow amounts equivalent to 90 per cent of the prevailing market price.

By Executive Order No. 6084 of March 27, 1933, the President declared that the Federal Farm Board would be known thereafter as the Farm Credit Administration. This agency is still functioning.

Agricultural Adjustment Act, 1933

This act authorized the Secretary of Agriculture to create in the Department of Agriculture a unit to be known as the Agricultural Adjustment Administration. It further authorized him to license and tax processors of cotton and other farm products. The revenue from this tax was to be returned to the farmers as rental or benefit payments, in return for which the farmers by agreement or other voluntary methods would withdraw land from production in order to reduce the surplus.

Under this act the Agricultural Adjustment Administration made effective a processing tax of 4.2 cents per pound net weight and established a

loan rate of 10 cents per pound on cotton during the 1933 season.

The act was declared unconstitutional by the decision of the U. S. Supreme Court in the Hoosac Mills Case in 1936 (See Bankhead Act).

Bankhead Cotton Act, 1934

This act provided that, for the 1934 season, 10,000,000 bales (500 pounds net weight, equivalent to 10,460,251 bales of 478 pounds net weight) of cotton could be ginned and marketed free of a tax that was fixed in the act as 50 per cent of the average central market price of 7/8" Middling spot cotton, but not less than 5 cents per pound.

Exempted from this tax were cotton of 1 1/2" and greater staple length, cotton produced on land owned by Government-owned agricultural experimental stations, cotton harvested on each farm not to exceed its allotment; and cotton harvested prior to the crop year 1934. The processing tax on cotton of 4.2 cents per pound net weight levied in the Agricultral Adjustment Act of 1933 was retained.

Under the Agricultural Adjustment Act of 1933 crop-control measures were to be voluntary. Not all growers cooperated and, because of the 10-cent loan on cotton in 1933, some non-cooperating growers increased their acreage, and other producers were tempted to go into cotton production.

As a result, the Bankhead Act was designed to use Federal powers to hold total production to a fixed national quota. It was to be operative only for the 1934 season, but it contained a provision authorizing the President to continue it for another year if necessary to meet the emergency in cotton production and marketing. The President authorized continuance of the act for the 1935 season.

Production-control programs under the Agricultural Adjustment Act were terminated following the decision of the U. S. Supreme Court in the Hoosac Mills case on January 6, 1936. Congress repealed the Bankhead Cotton Act on February 10, 1936, except Section 24, which related to new and extended uses for cotton.

Commodity Exchange Act, 1936

This act amended the Grain Futures Act of 1922 (similar to the Cotton Futures Act of 1916, which see) so that the title of the act as amended might be cited as the "Commodity Exchange Act". An important provision of the Grain Futures Act was the power given to place a limit upon purely speculative trading on the part of any person or firm. It provided also for the licensing of commission firms accepting orders from the public and prohibited, under severe penalty, the bucketing of customers' orders, the making of "wash sales", and "fictitious trades", and cheating and fraud in connection with the handling of customers' orders.

The act further amended the Grain Futures Act by adding cotton, rice, mill feeds, butter, eggs, and Irish potatoes to the commodities under the act. It declared excessive speculation in commodities to be an undue and unnecessary burden on interstate commerce. It therefore authorized establishment of the Commodity Exchange Commission, to consist of the Secretaries of Agriculture and Commerce, and the Attorney General, and gave the Commission power, by order, after due notice and opportunity for hearing, to proclaim and fix such limits on the amount of futures trading which may be done on contract markets as the Commission finds necessary to diminish, eliminate, or prevent such burden.

This act does not prevent bona-fide hedging, nor the exchange of futures in connection with cash commodity transactions, nor exchange of futures for cash commodities.

Agricultural Adjustment Act, 1938

This act provided for a minimum national allotment of 10,000,000 bales of cotton, to be produced on from 26,000,000 to 26,500,000 acres. Acreage allotments were to be divided among states and among counties in each state on the basis of 1933-37 acreage planted, including acreage diverted under regulations of the Agricultural Adjustment Administration. Alloted acreage was to be not less than 60 per cent of the 1937 acreage, plus 60 per cent of acreage diverted in 1937. The farmer might sell his crop without penalty provided he used no more than his alloted acreage.

If the cotton supply (crop plus carry-over) exceeded normal (18,200,000 bales) by as much as 7 per cent, marketing quotas were to be effective for the next year if approved in a referendum by two-thirds of the growers. Quotas for 1938 were to go into effect if similarly approved.

Payments to farmers, conditioned upon soil conservation, were to be made on a "parity basis". Price-adjustment payments also were to be made on the 1937 crop.

The act provided that the Commodity Credit Corporation was to be used as an agency for cotton loans under the act, which were authorized on the basis of a minimum of 52 per cent of the parity price.

The act authorized the Secretary of Agriculture to make and prosecute claims to the Interstate Commerce Commission relative to transportation rates, charges, etc., on farm products, also to assist co-operative associations in making complaints to the commission. It also authorized appropriations for the establishment of regional agricultural research laboratories to develop new uses and markets for agricultural products and by-products, and for the promotion of new foreign markets.

Glossary

ACREAGE—Unless otherwise specified, "acreage" refers to the area harvested, which is generally considerably smaller than the area planted or the area in cultivation at some specified date (such as July 1) in the growing season.

AMERICAN—The terms "American" and "American cotton" are used in the commercial sense and refer to the United States or to cotton produced in the United States.

ANY-QUANTITY RATE—A rate applied irrespective of the quantity shipped.

BALE—Unless otherwise indicated, "bale" when referring to American cotton means a running bale. (For which see definition below.) When referring to foreign cotton, it means a statistical bale containing 478 pounds of cotton.

BALE, GIN—A term used to describe the first baling of cotton. Often spoken of as a flat or uncompressed bale.

BALE, PHYSICAL—Units without regard to weight.

BALE, ROUND—A cylindrical bale, weighing approximately 250 pounds gross weight or 247 pounds net weight.

BALE, RUNNING—A term used to indicate the actual bale as it moves in channels of trade, irrespective of weight, except that round bales are usually counted as half bales.

CAROLINA TERRITORY—This term comprises North and South Carolina and southern Virginia.

CARRY-OVER—Total stocks of ginned cotton on hand at the beginning (August 1) or end (July 31) of a cotton-marketing season.

CENTRAL CONCENTRATION MARKET—A market where cotton is concentrated into even-running lots for distribution to domestic consumers and exporters.

CITY CROP—Cotton composed of rebaled samples, sweeping, and pickings from cotton damaged by weather, fire, etc.

COASTWISE RECEIPTS AND SHIPMENTS—These terms apply to traffic receiving a carriage between two ports of the United States over the ocean, the Gulf of Mexico, or important arms of the oceans or the Gulf of Mexico, with the exception of Chesapeake Bay and Puget Sound localities, and also to traffic with Alaska, Hawaii, and Puerto Rico. Traffic between Great Lakes ports and seacoast ports is also termed "coastwise".

CONSUMPTION—The terms "consumption" and "mill consumption" as here used refer to the quantity of cotton processed in manufacturing establishments, mainly in the production of cotton yarns.

COTTON—Ginned or lint cotton, not including linters (the residual fibers removed from cotton seed at oil mills, see definition).

COTTON, COMMERCIAL—Cotton that enters or will eventually enter commercial channels. It does not include large quantities of cotton in India and China and smaller quantities in other countries which is grown for consumption on hand spindles or in other ways used in or about the household.

COTTON, UPLAND—A term applied to all varieties of the *Gossypium hirsutum* species of cotton to distinguish it from cotton of different species such as American Egyptian and Egyptian (*G. barbadense*) and Indian (*G. herbaceum*). All American cotton is Upland cotton except small quantities of American Egyptian and Sea-Island.

COTTON FARM—The 1930 Census classified cotton farms as farms on which 40 per cent or more of the total income is derived from cotton. The 1940 census revised this to mean any farm that grows cotton.

COTTON MARKET—A place where cotton is offered for sale.

CROP LAND—All acreage available for cultivated crops.

CROP YEAR—The year beginning August 1 in which the bulk of the specified crop is harvested, regardless of when it was planted. It corresponds to the cotton-marketing season generally used in cotton statistics and by the cotton trade in the United States and in most other countries.

EGYPT—Approximately 97 per cent of the area of Egypt is desert waste, of no agricultural value. The production area is confined to the valley (Upper Egypt) and the delta (Lower Egypt) of the Nile River.

EXPORTS—Unless otherwise indicated, the term is applied to total exports rather than to net exports, in which adjustments have been made for imports or re-imports.

EXPORT MARKET—A market where cotton is sold for export.

FARM—All the land on which some agricultural operations are performed by one person, either by his own labor alone or with the assistance of members of his household or hired employees. When a landowner has one or more tenants, renters, croppers, or managers, the land operated by each is considered a farm.

FARM OPERATOR—A person who operates a farm, either performing the labor himself or directly supervising it. For all practical purposes, the number of farm operators is identical with the number of farms. Farm operators are classified as "white" and "non-white". "White" includes Mexicans, and "non-white" includes Negroes, Indians, Chinese, Japanese, and other non-white classes.

FARM LAND—Acreage so designated includes considerable areas of land not actually under cultivation and some land not even used for pasture or grazing. However, large areas of timberland or other non-agricultural land held by an operator of a farm as a separate business, and not used for pasture or grazing or for any other farm purpose are not included.

FOREIGN—The terms "foreign" and "foreign cotton" are used for convenience to indicate all countries other than the United States and all cotton other than American cotton.

FUTURES MARKET—A place where cotton is bought and sold for future delivery on a rigidly standardized contract. The market is formed by an association and is closed to everyone except members.

HEDGING—The holders of cotton, whether merchants, cooperative associations or individual growers, run a risk of loss from price changes between the time they acquire ownership of cotton and the time they sell it. However, the futures market offers them a form of insurance against such losses in a process called hedging. A hedge has been defined as "a sale or purchase of a contract for future delivery against a previous purchase or sale of an equal quantity of the same commodity or an equivalent quantity of another commodity that has a parallel price movement and where it is expected that the transaction in the contract market will be cancelled by an offset transaction at the time the contemplated spot transaction is completed and before the future contract matures"[1]. A hedge is an operation in the futures market the reverse of a transaction in spot cotton. A merchant who has bought spot cotton may hedge his purchase by selling a contract to deliver that same amount of cotton at some future time, say, 4 months ahead. He later disposes of his spot cotton, regardless of how prices may change in the meantime; if spot prices are good he may sell before the 4 months have elapsed. When he sells his spot cotton he buys a futures contract for the delivery of cotton to match the contract he had previously sold. The hedge is then completed. Spinners hedge by the reverse of the merchants' transactions.

The cotton crop comes on the market during the course of a few months. Those who hold cotton to release it as needed for consumption hedge their purchases in the futures market, buying back the hedges as they sell the spot cotton. The balance wheel in the market is formed by outside buyers and sellers who have no spot cotton but deal only in futures. Hedging is intended to protect against price changes, whereas speculation seeks to profit from price changes.

HOG-ROUND—The purchase or sale of a farmer's entire cotton crop at a fixed price without regard to grade or staple length.

IMPORTS—Unless otherwise indicated, the term applies to total imports rather than to net imports, in which adjustments have been made for exports or re-exports.

LINTERS—The short fiber or fuzz adhering to the seed after ginning. They are pressed in bales similar to gin bales of cotton, averaging approximately 600 pounds each.

LOCAL OR PRIMARY MARKETS—Markets where growers take their cotton to sell; they may be local, country, primary, wagon, or farmers' markets.

MERCHANDISE EXPORTS—All commodities exported except gold and silver.

MISSISSIPPI VALLEY—The territory lying generally between the Mississippi River and the line of the Gulf, Mobile and Ohio Railroad from Mobile, Ala., to Jackson, Tenn., and connection northward to Paducah, Ky.

MOZAMBIQUE—Also known as Portuguese East Africa, on the Indian Ocean and south of Tanganyika (which see).

[1] U. S. Department of Agriculture, "1926, Cotton Prices and Markets", Dr. A. B. Cox, p. 27.

PRICE, PARITY—A price (for cotton) arrived at by multiplying the average farm price from August 1909 through July 1914 (12.4 cents) by the index of prices paid by farmers, includng interest and taxes (1910-14 equals 1.00).

PRICE, SPOT—The price of actual cotton for prompt delivery in the market where the price is quoted.

REGIONS, Southern, Southwestern, etc.—Applied to groups of railroads as so classified by the I.C.C.

SEASON—The terms "season" and "marketing season" as here used generally refer to the 12 months from August 1 to July 31.

SOUTHEAST—All the territory in the South not embraced in the Carolinas and Mississippi Valley territories.

SOUTHERN REGION—One of eight roughly territorial groups to which various railroads have been assigned by the I.C.C. for statistical purposes.

SOUTHWEST or SOUTHWESTERN TERRITORY—Embraces all of Arkansas, Oklahoma, Louisiana west of the Mississippi River, southern Missouri, and Texas except the western and southwestern portions of the state.

SOUTHWESTERN REGION—One of eight roughly territorial groups to which various railroads have been assigned by the I.C.C. for statistical purposes.

SPOT MARKET—A market where actual cotton that is "on the spot", i. e., spot cotton, is bought and sold. It may not be on the spot in that particular market, but the seller has it under his control at some place.

SPINNERS' MARKET—a market in or near a mill center where the manufacturer obtains his cotton.

SUNDRIES—The terms "sundries" or "sundry cotton" or "sundry growths" refer to all cotton other than cotton produced in the United States, India, or Egypt.

SUPPLY—The carry-over on August 1 plus production or ginnings from August 1 to July 31. In the case of American cotton, ginnings also include the "city crop."

TANGANYIKA—British (formerly German) colony in East Africa, on the Indian Ocean and south of Uganda (which see).

UGANDA—A British Protectorate in the extreme northwest portion of British East Africa and south of the Anglo-Egyptian Sudan.

YIELD—The terms "yield" or "yield per acre" refer to the net weight of lint or ginned cotton produced per acre harvested.

Date Due